A tour of Urology

What can the primary care physician do?

Brian W. Ellis

- Consultant Urological Surgeon at Ashford & St Peter's 1983-2007
- Currently Consultant Urological Surgeon at Cobham Hospital
- Visiting Professor at Middlesex University

- Tutor and Examiner for the Postgraduate Diploma in Urology; the PG(Dip)Urol

Today's programme

- The Urological History & Examination
- Common conditions
  - Kidney and ureter
  - Bladder cancer
  - BPH
  - Prostate cancer
  - Scrotal swelling
  - Penile problems and ED

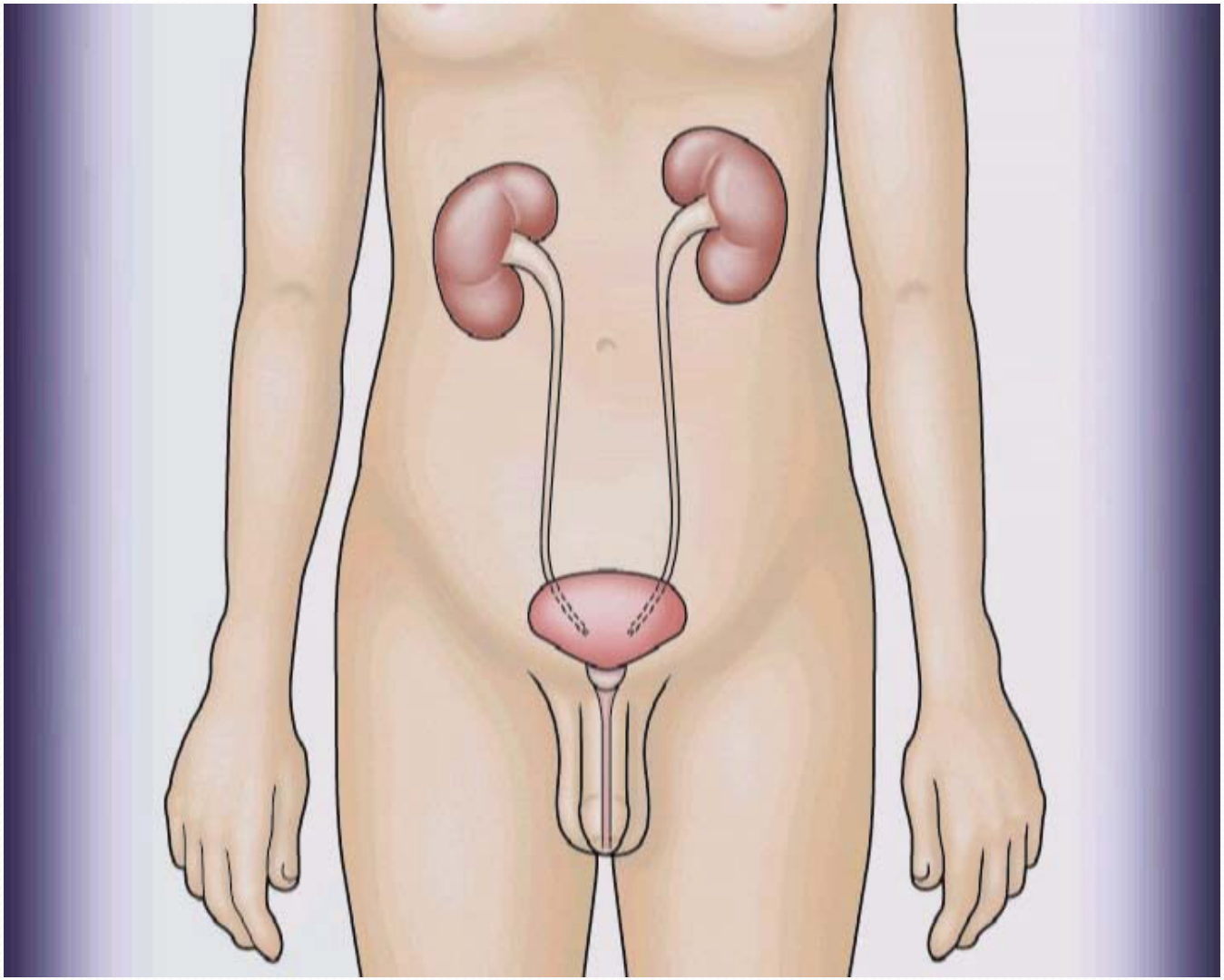
Diploma in Primary care Urology

History & Examination

History *The basics*

- Approach
- Circumstances
- Structure
  - Default list
  - Subroutines
  - General & Specific
- Understanding of Pathophysiology

History



History *Default list*

- Upper tract symptoms
- Lower tract symptoms
- External Genitalia
- Other symptoms
- Systems review
- Past & Family History
- Medications
- Fear of Cancer

History

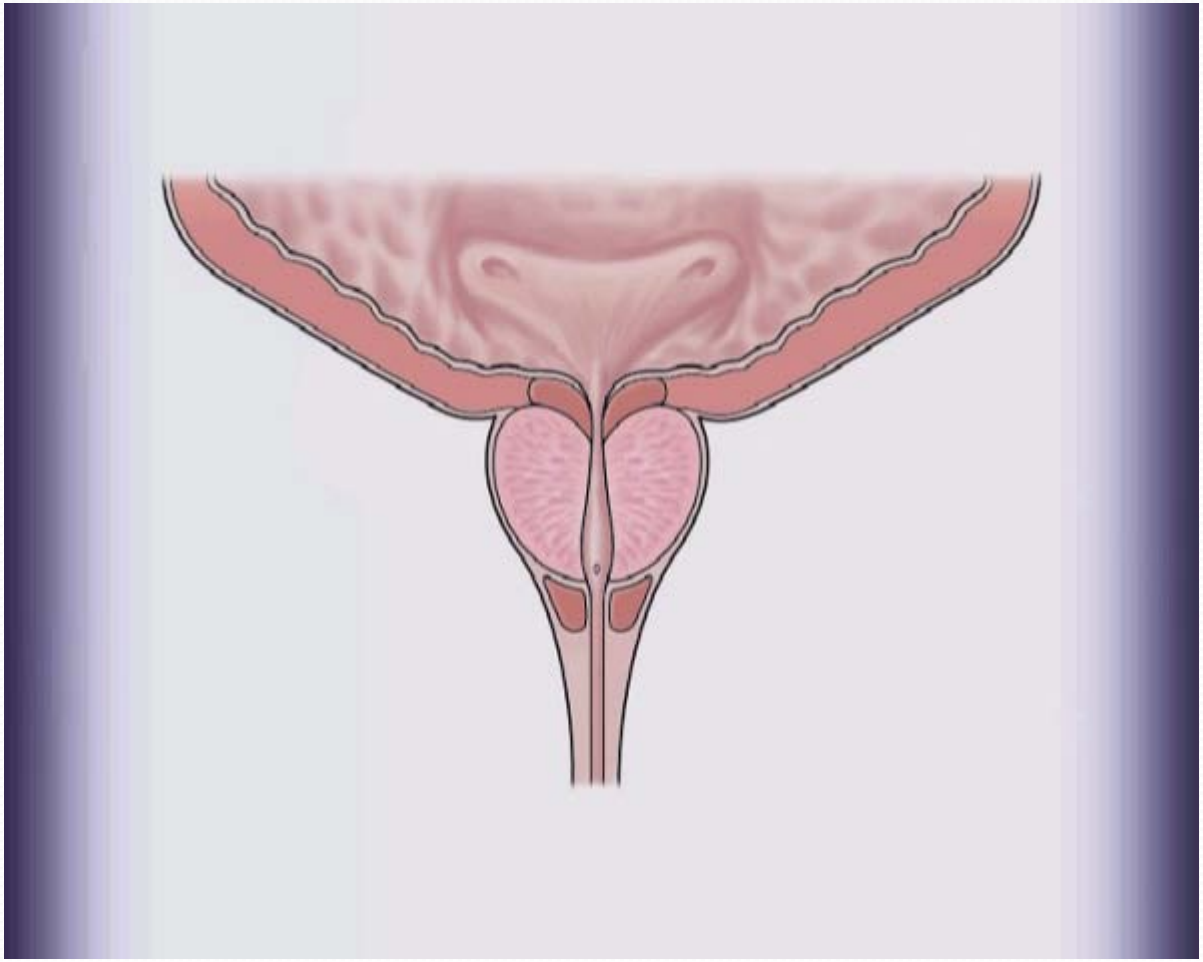
A subroutine for lower tract symptoms

- Nocturia
- Frequency
- Urgency
- Hesitancy
- Force of flow
- Intermittency
- Dribble (type)
- Dysuria
- Haematuria
- Urine colour
- Cloudiness
- Pneumaturia
- Faecaluria
- Fluid Vol / type

History *Pathophysiology*

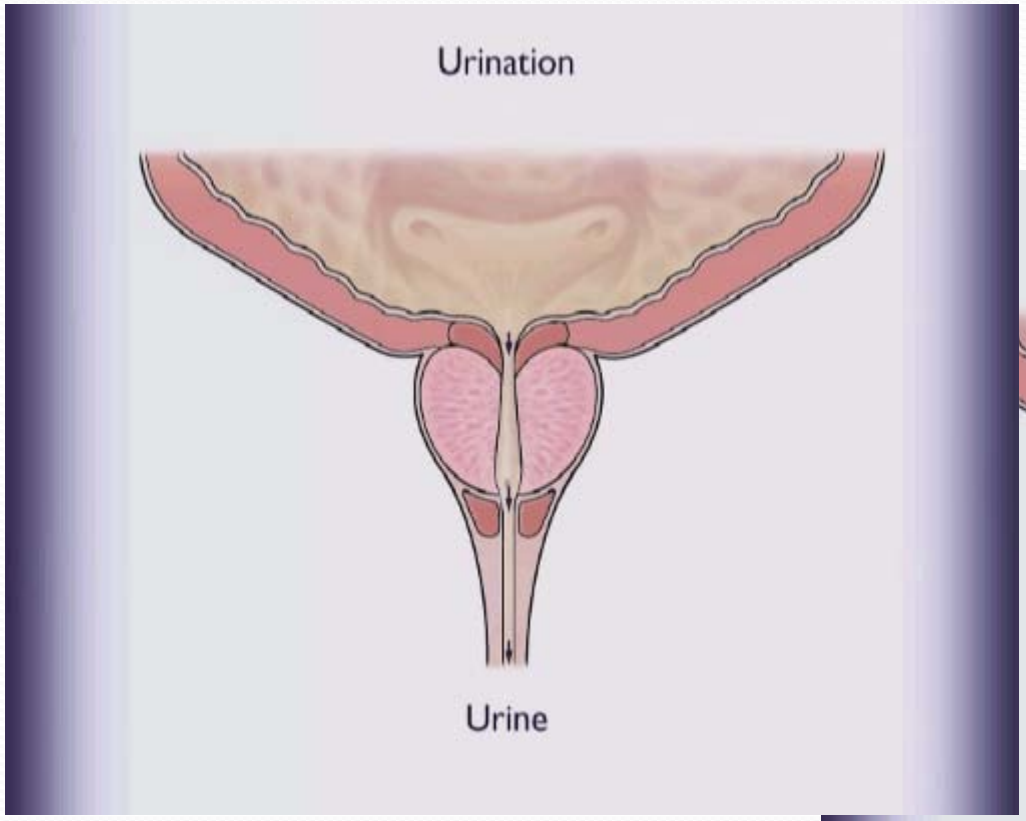
- Stretching organs
- Renal
  - (Ureteric) ‘colic’
  - tumour
- Scrotum
  - Acute epididymo-orchitis
  - Chronic epididymitis
  - Epididymal Cyst / Hydrocele
  - Varicocele
- Bladder outflow obstruction

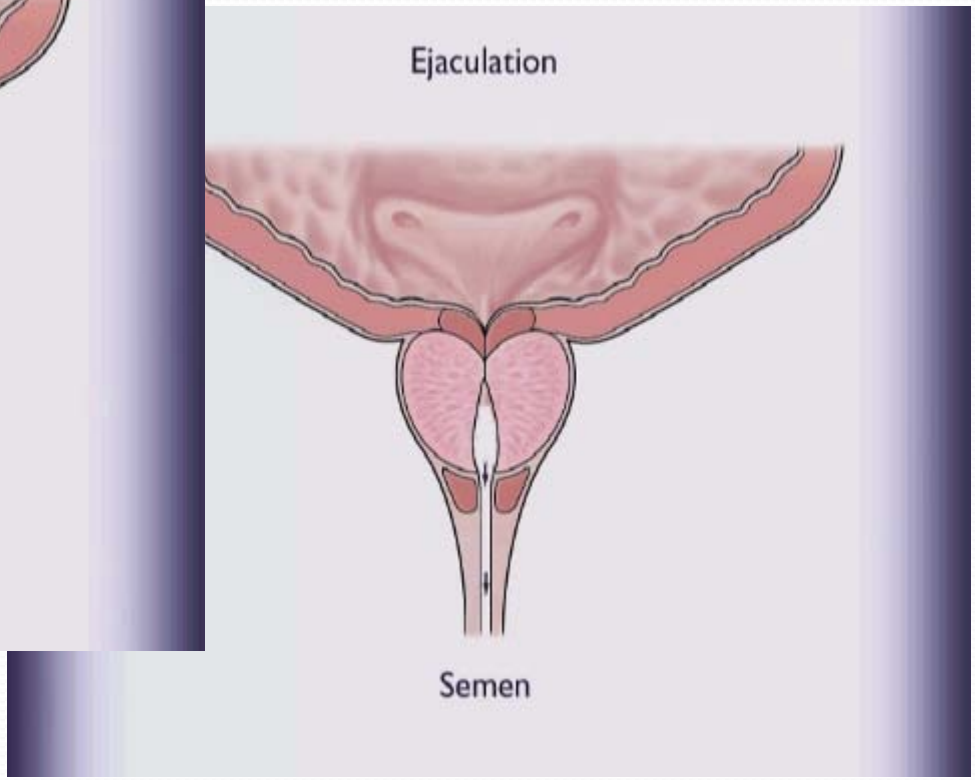
History *Bladder outflow obstruction*



Physiology

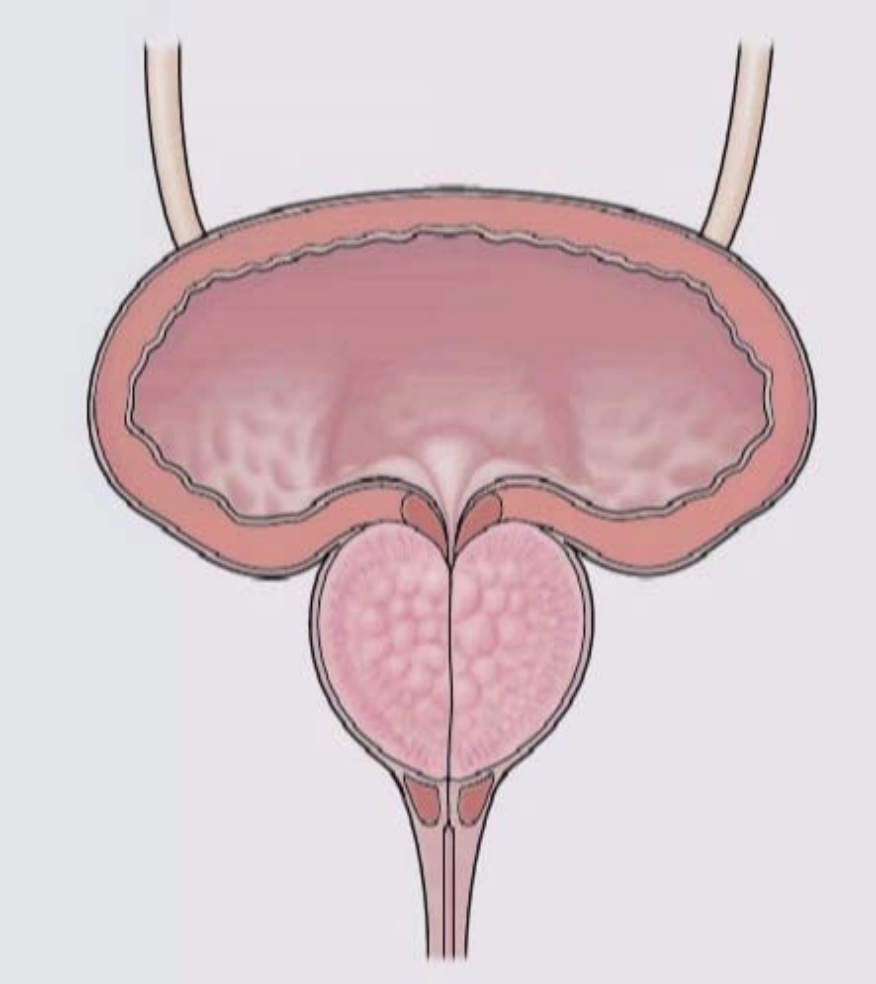
Bladder outflow obstruction





Consequences of

Untreated bladder outflow obstruction



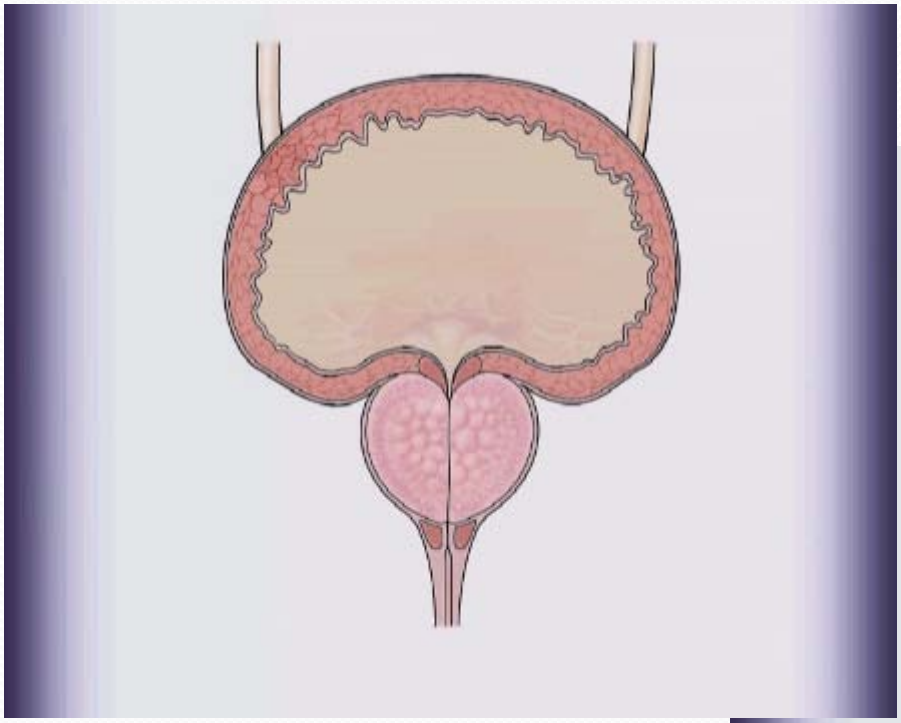
Increasing symptoms

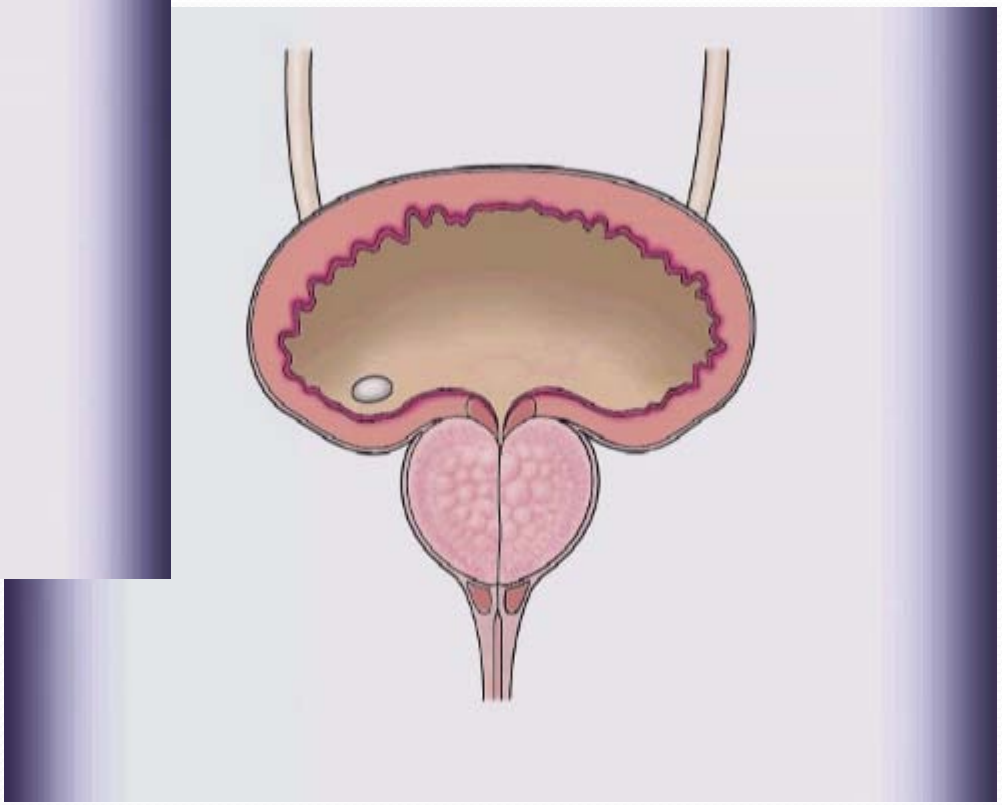
Acute retention

Chronic retention

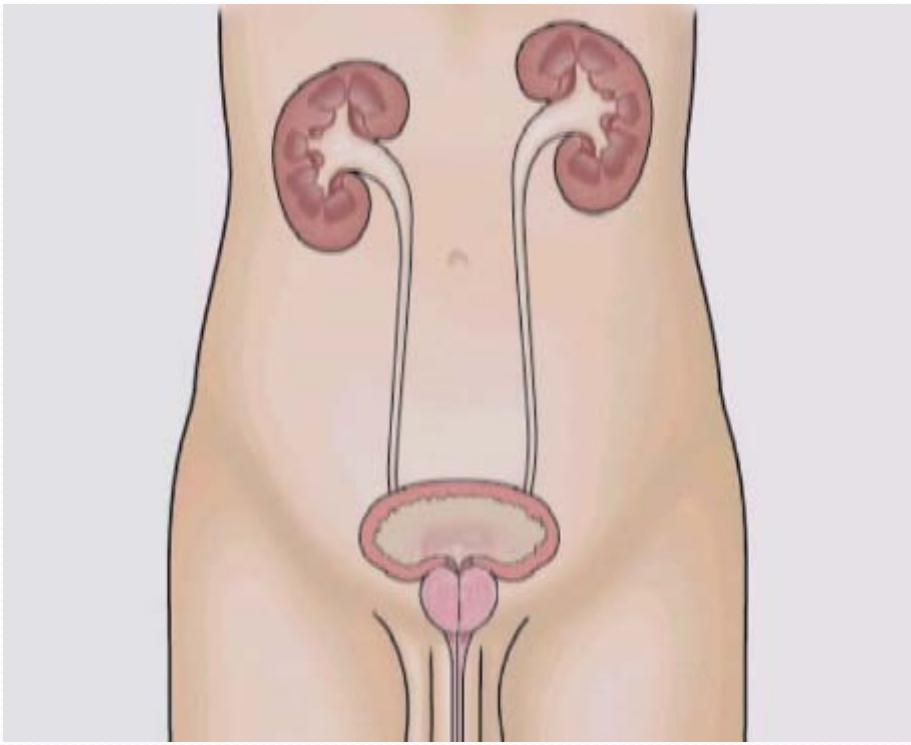
Consequences of

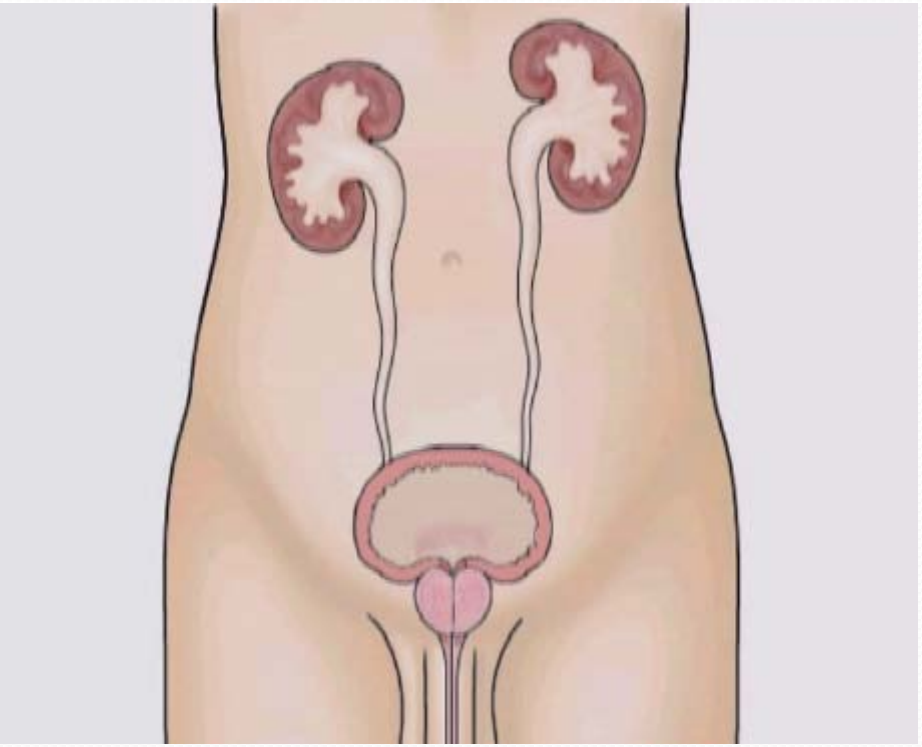
Bladder outflow obstruction





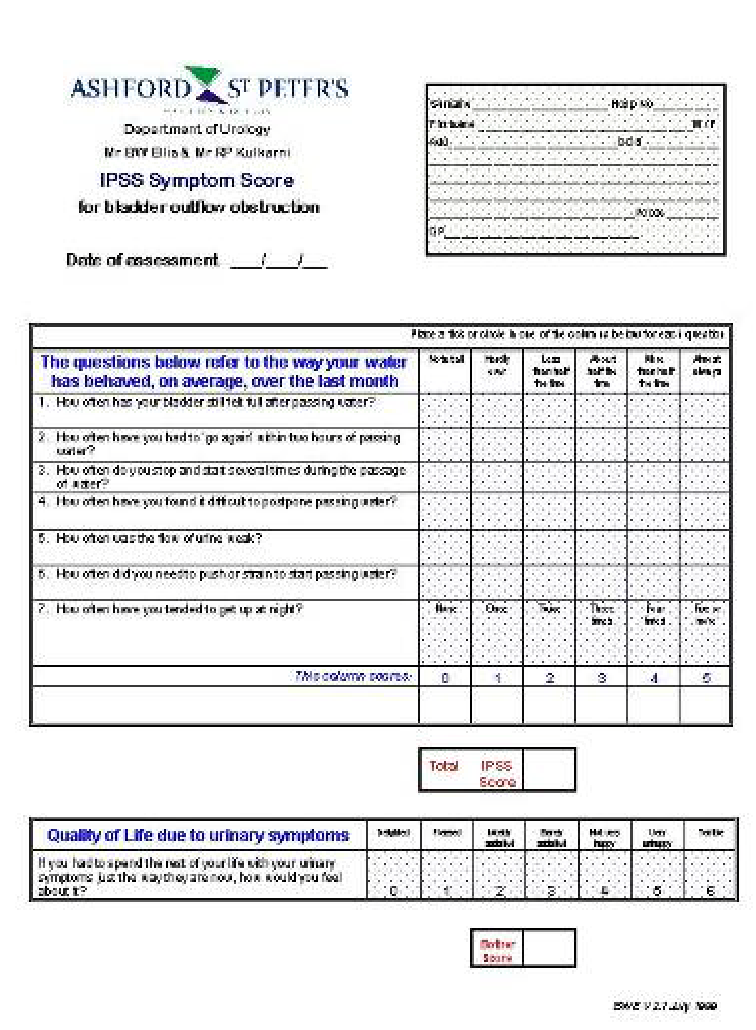
History *Chronic retention*





History

Extra information



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IPSS Symptom Score

for bladder outflow obstruction

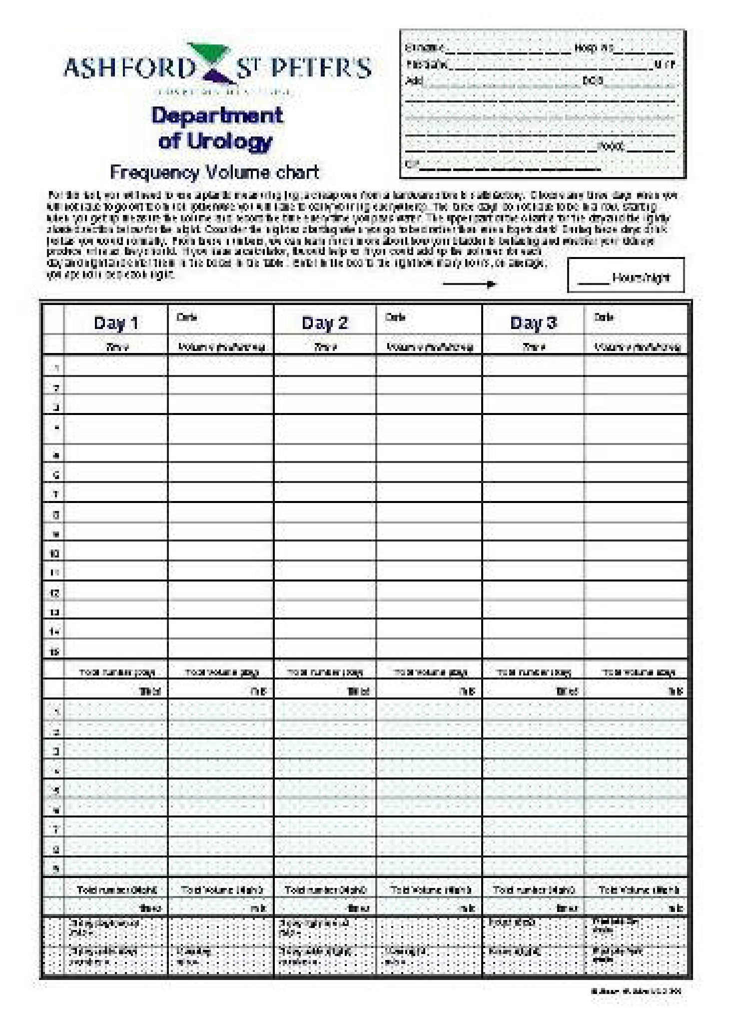
Date of assessment ___/___/___

The questions below refer to the way your water has behaved, on average, over the last month	Not at all	Hardly ever	Less than half the time	About half the time	More than half the time	Almost always
1. How often has your bladder still felt full after passing water?						
2. How often have you had to go again within two hours of passing water?						
3. How often do you stop and start several times during the passage of water?						
4. How often have you found it difficult to postpone passing water?						
5. How often was the flow of urine weak?						
6. How often did you need to push or strain to start passing water?						
7. How often have you tended to get up at night?	None	Once	Twice	Three times	Four times	Five or more
This column scores:	0	1	2	3	4	5

Total IPSS Score

Quality of Life due to urinary symptoms	Delighted	Pleased	Mostly satisfied	Mixed	Mostly dissatisfied	Unhappy	Terrible
If you had to spend the rest of your life with your urinary symptoms just the way they are now, how would you feel about it?	0	1	2	3	4	5	6

Bother Score



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Frequency Volume chart

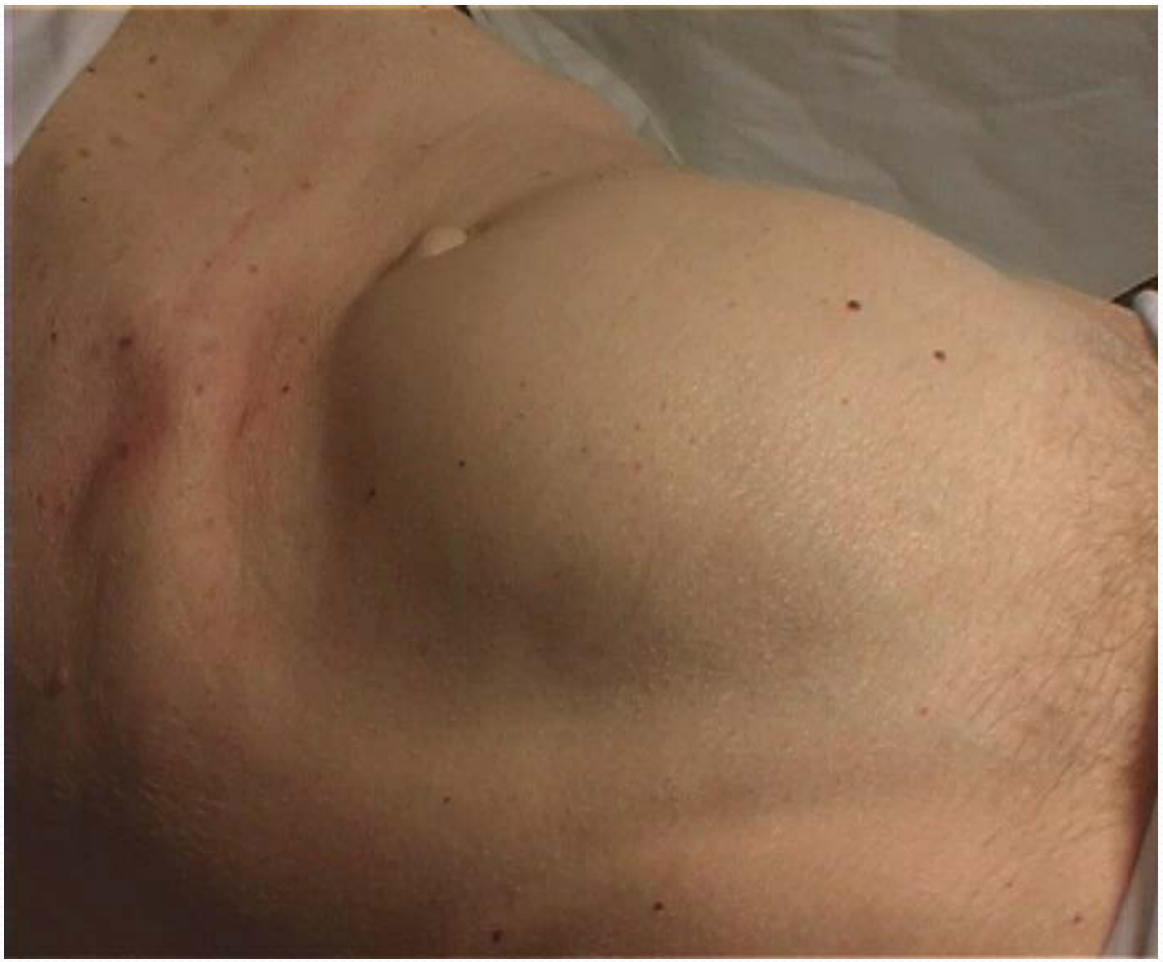
	Day 1		Day 2		Day 3	
	Time	Volume	Time	Volume	Time	Volume

Examination

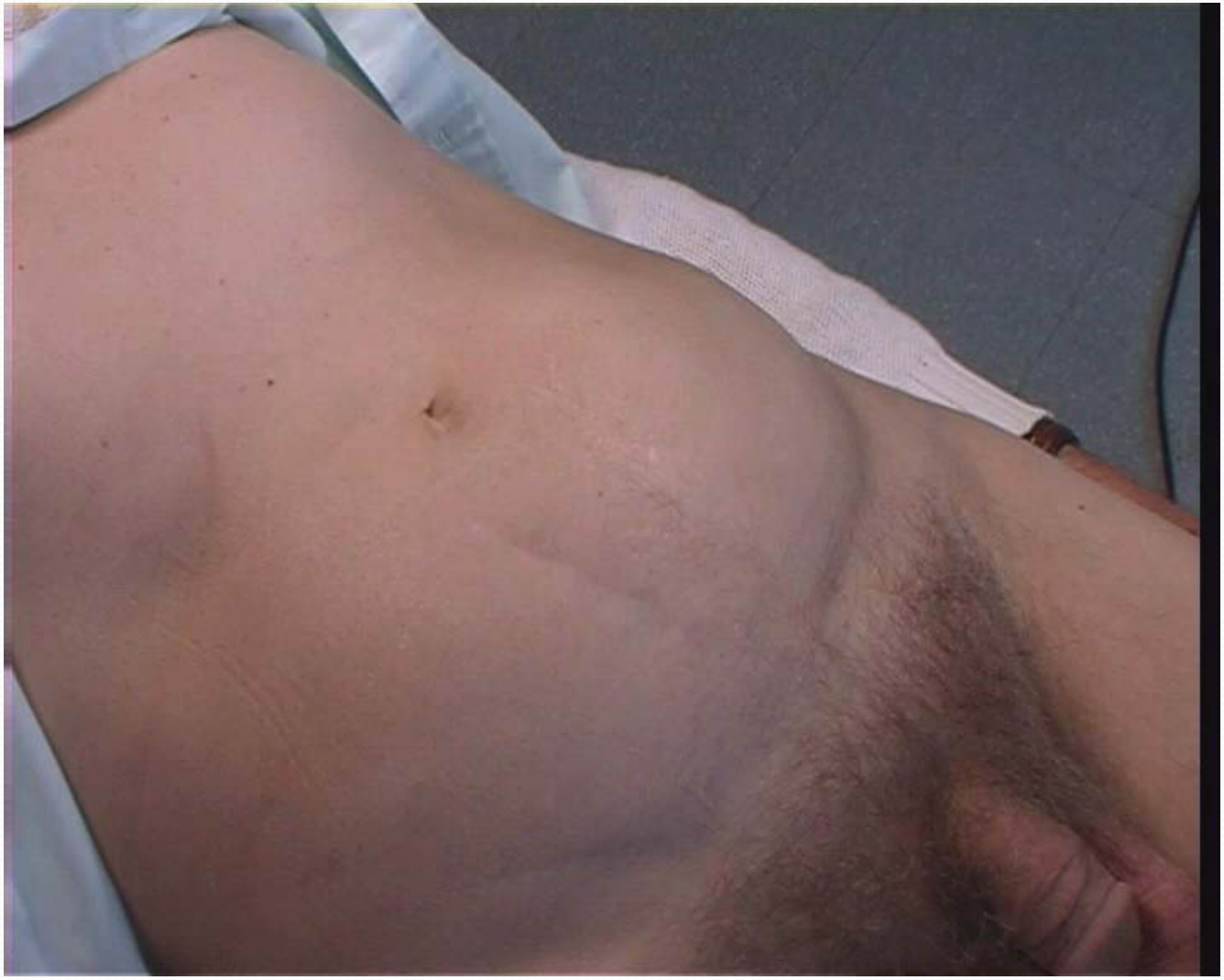
- Inspection
- Palpation
- Percussion
- Auscultation
- Internal examination
- Standing

Examination

Inspection



Examination



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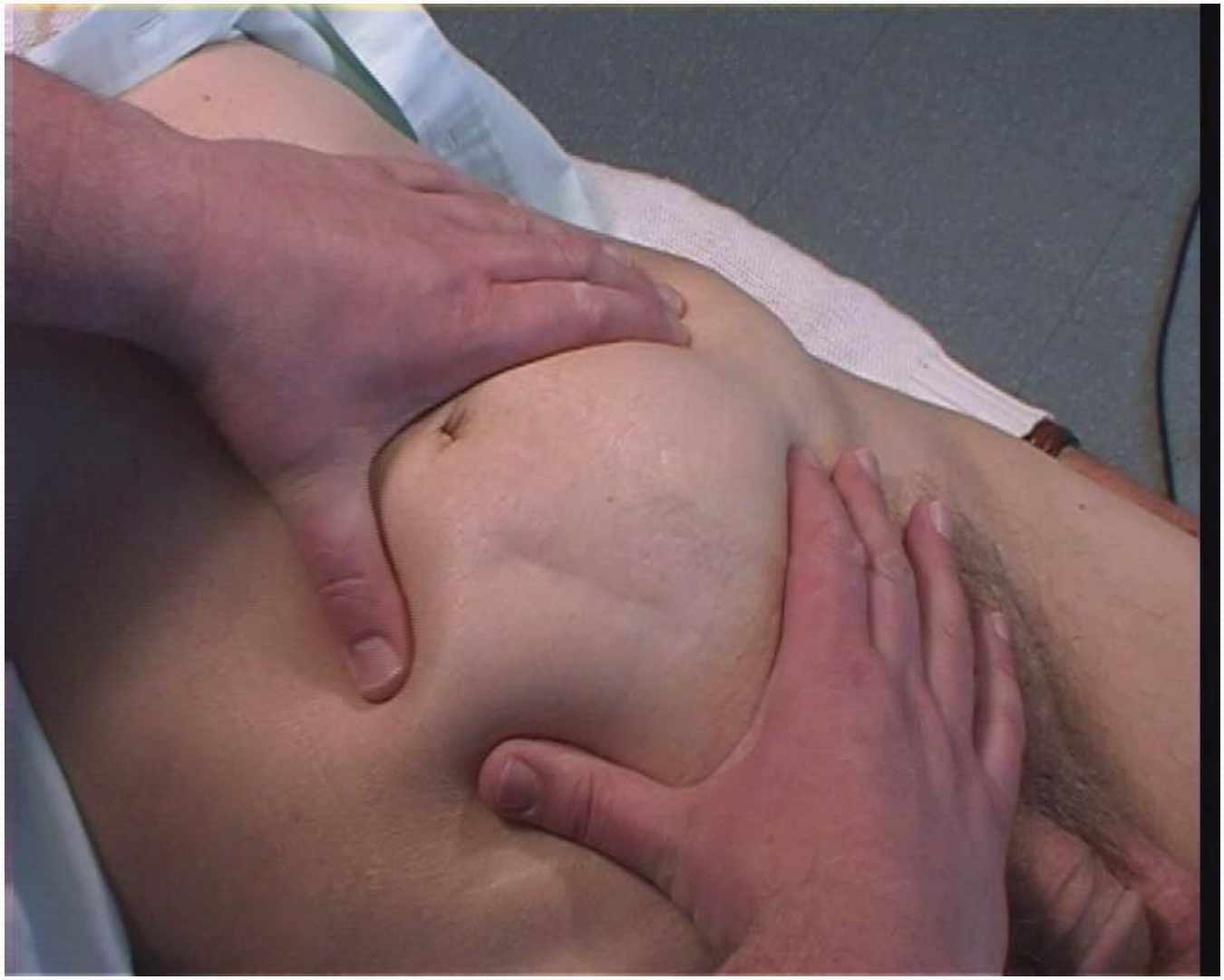

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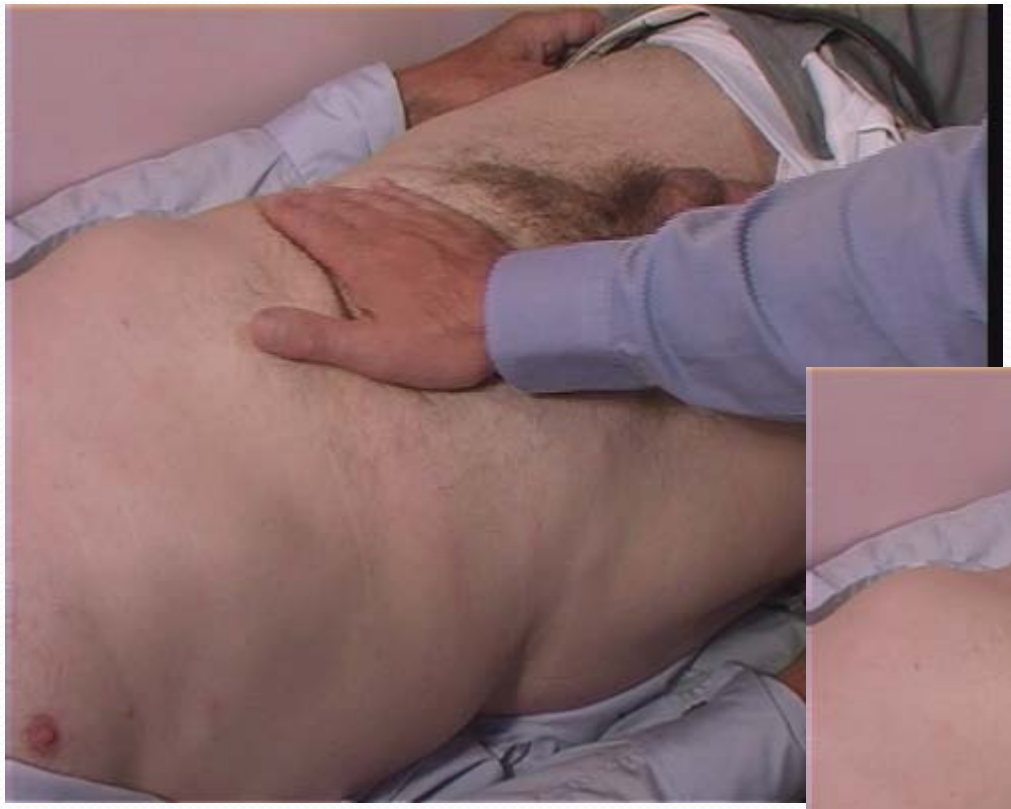
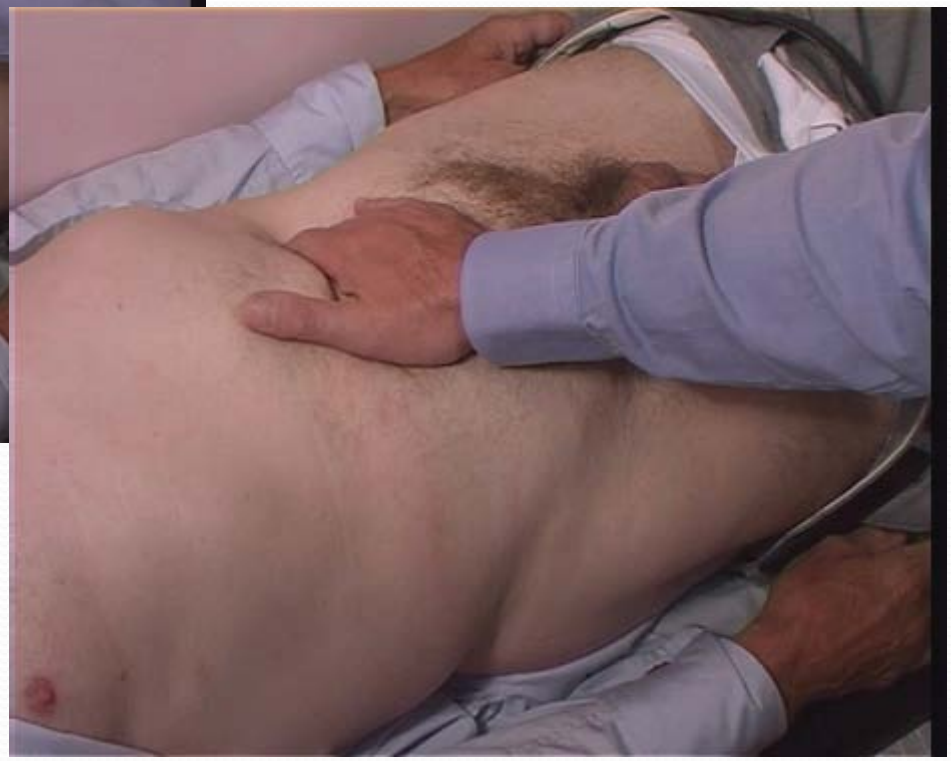


Palpation



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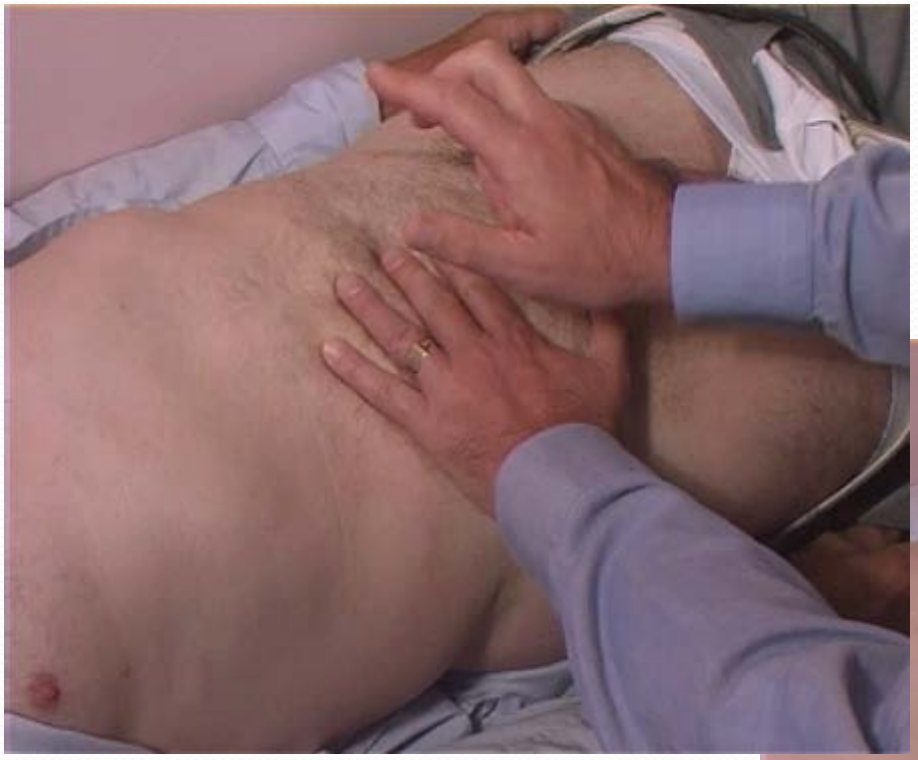
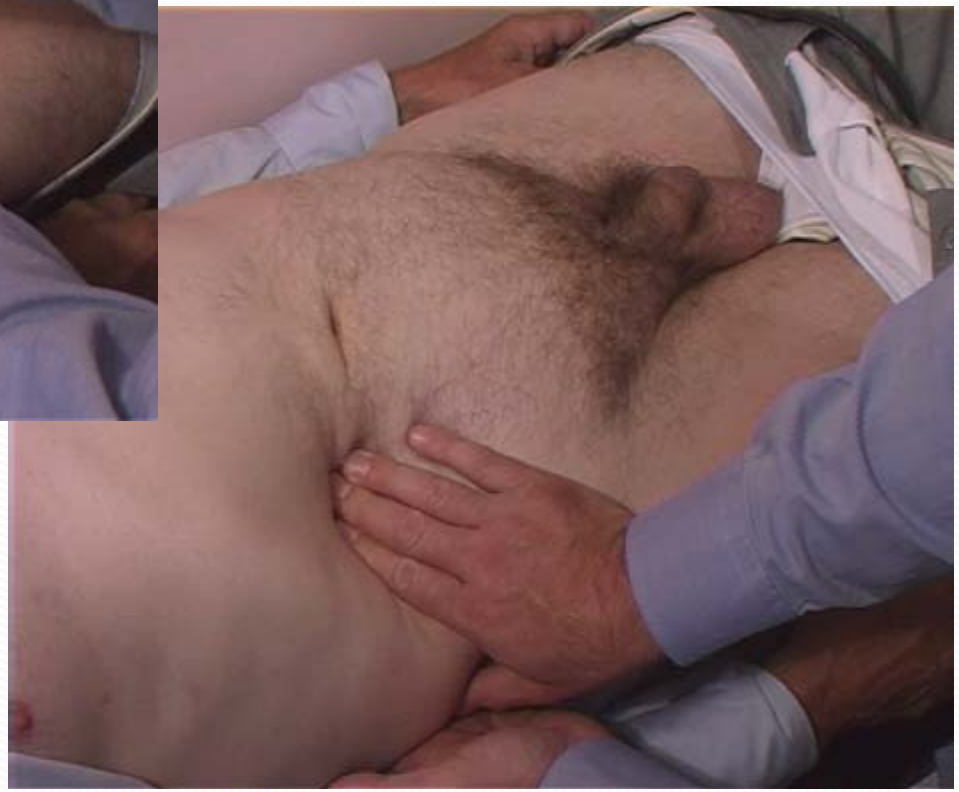


Percussion &

bimanual



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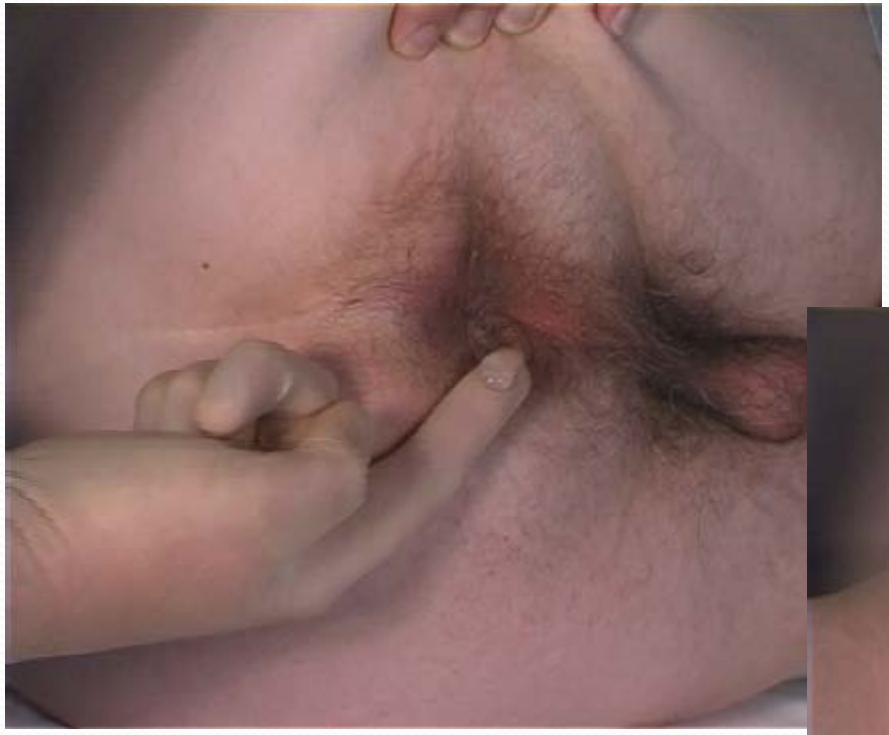
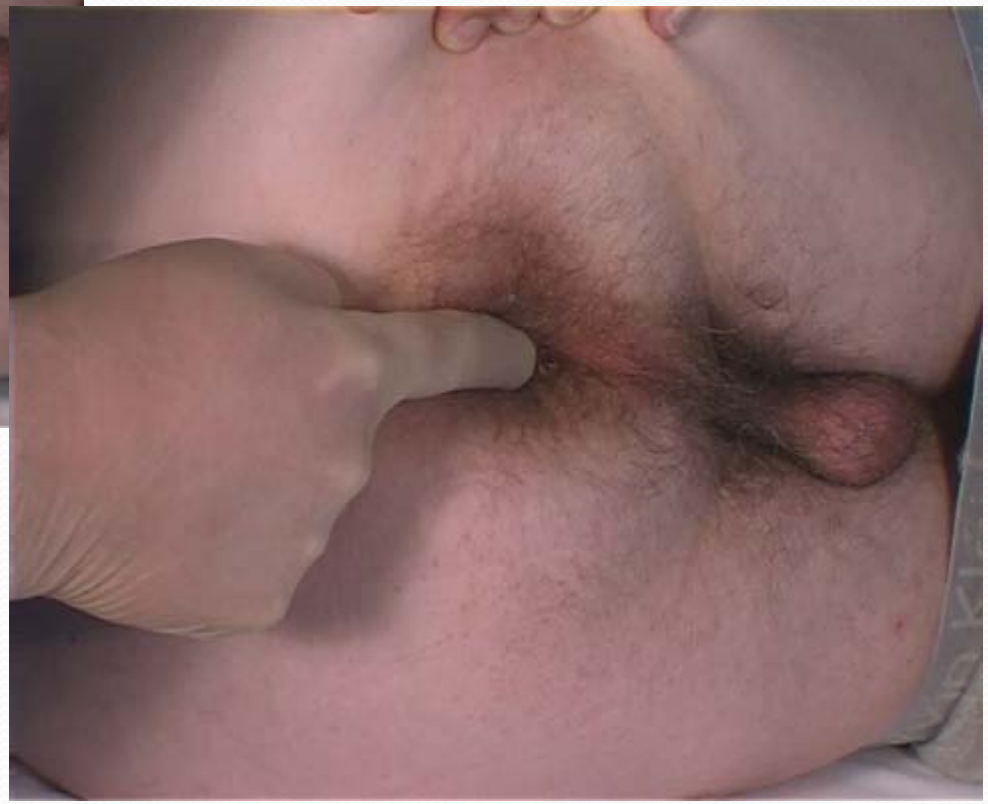
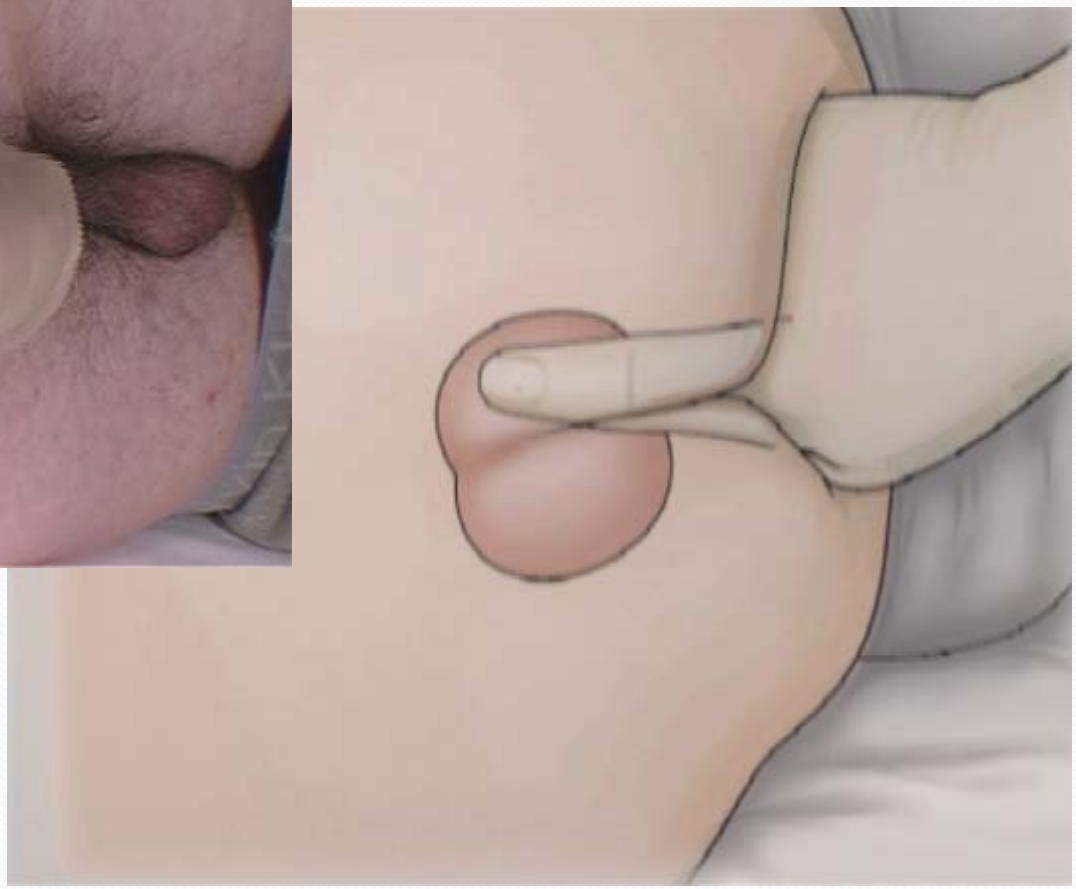


DRE



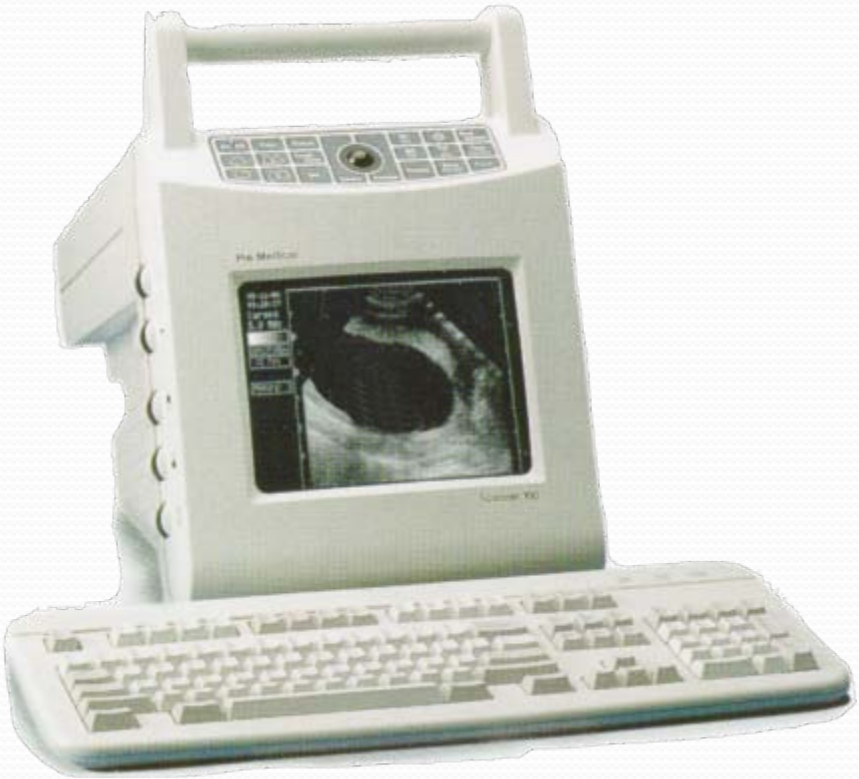
Examination

DRE



Examination

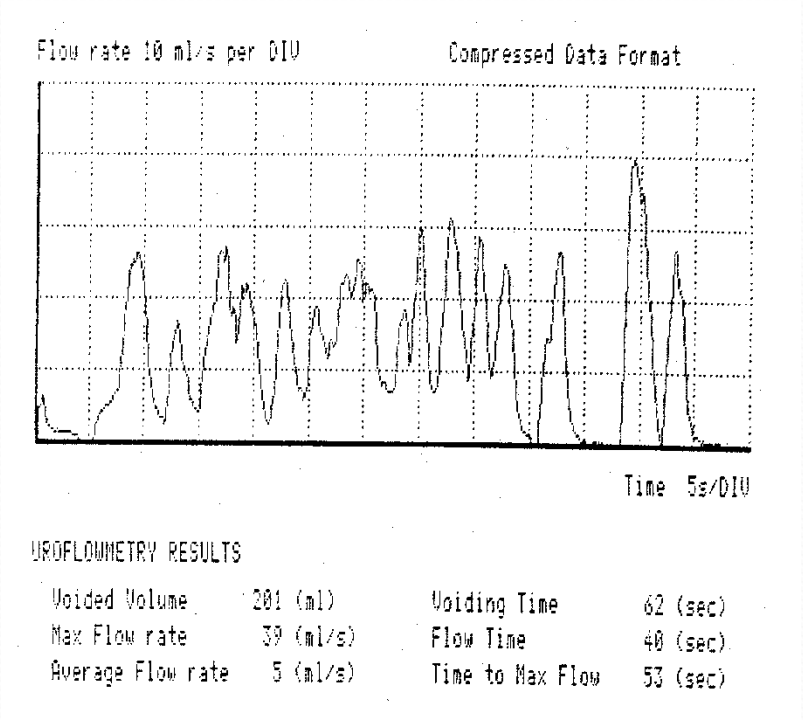
Bedside tests

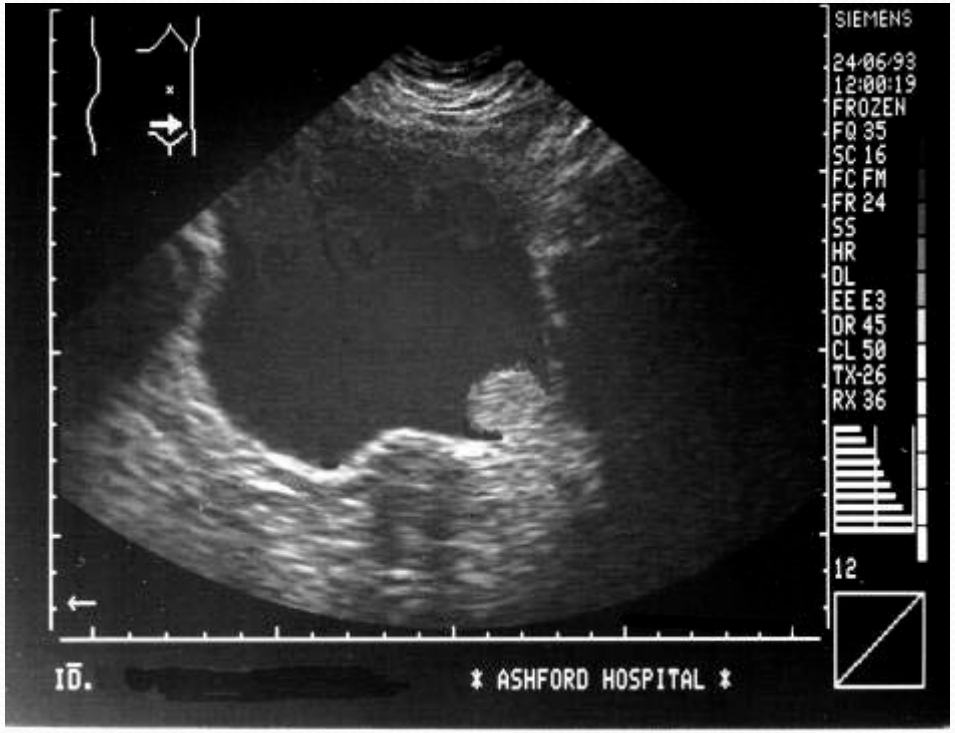


Scanners

Examination

Technical aids





Short Break

The Kidney

Common conditions of the Kidney & Ureter

- Chronic loin pain: stone pyelonephritis
  Haematuria loin pain syndrome
- Renal Tumour (RCC / TCC / Other tumours)
- Obstruction
  - PUJ
  - Ureteric
  - Bladder outflow obstruction
- Injury

Imaging IVU, US, MAG3, DMSA

What can you do?

Bladder cancer

Bladder cancer

- History & Presentation
- Risk factors
- Investigation
- Types & Pathology
- Management

What can you do?

Other bladder conditions

- Stone
- Recurrent UTI
- Diverticulum
- Bilharzia
- Etc. Etc.

What can you do?

Benign Prostatic Hyperplasia

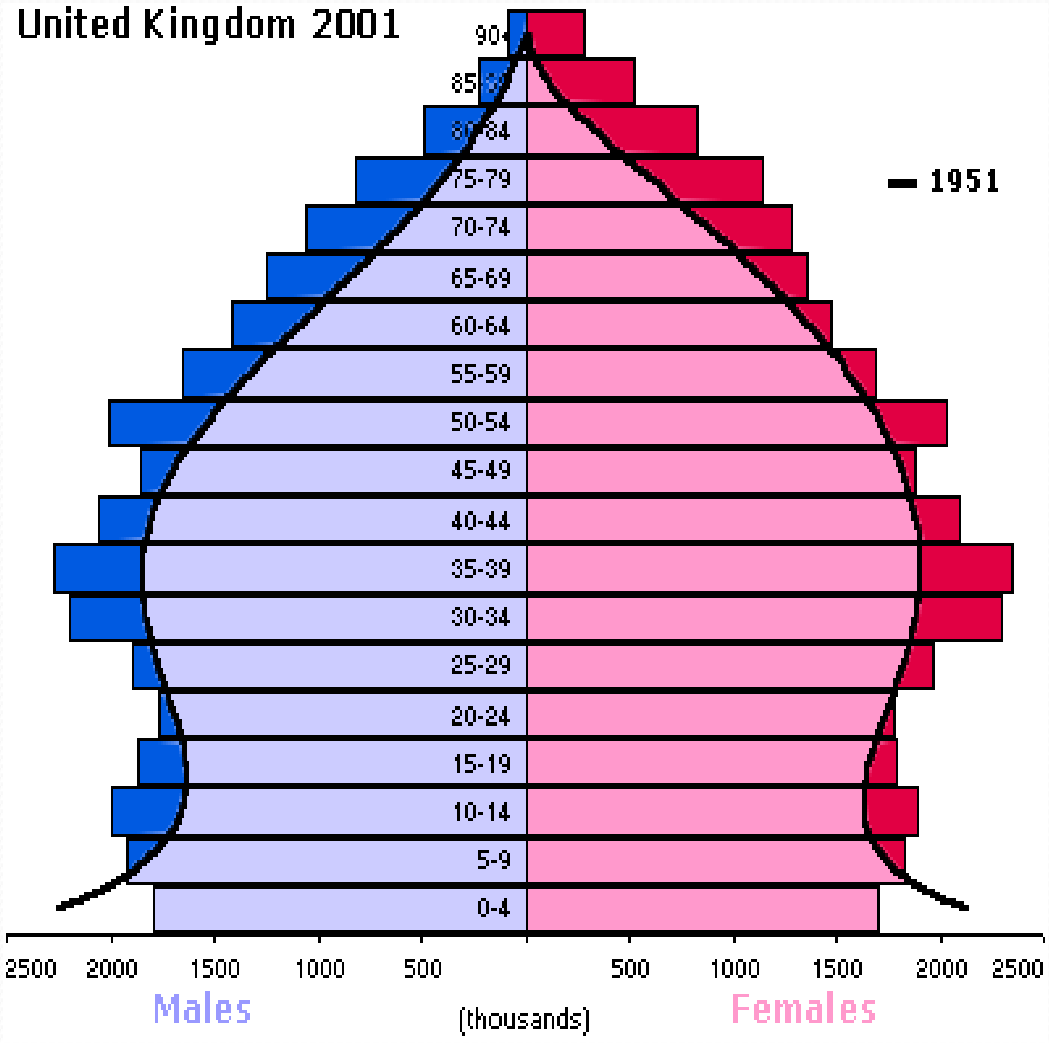
BPH ~ Terms

- Benign prostatic hypertrophy BPH
- Benign prostatic enlargement BPE
- Benign prostatic obstruction BPO
- Lower urinary tract Symptoms (LUTS)
- Nocturnal polyuria

BPH

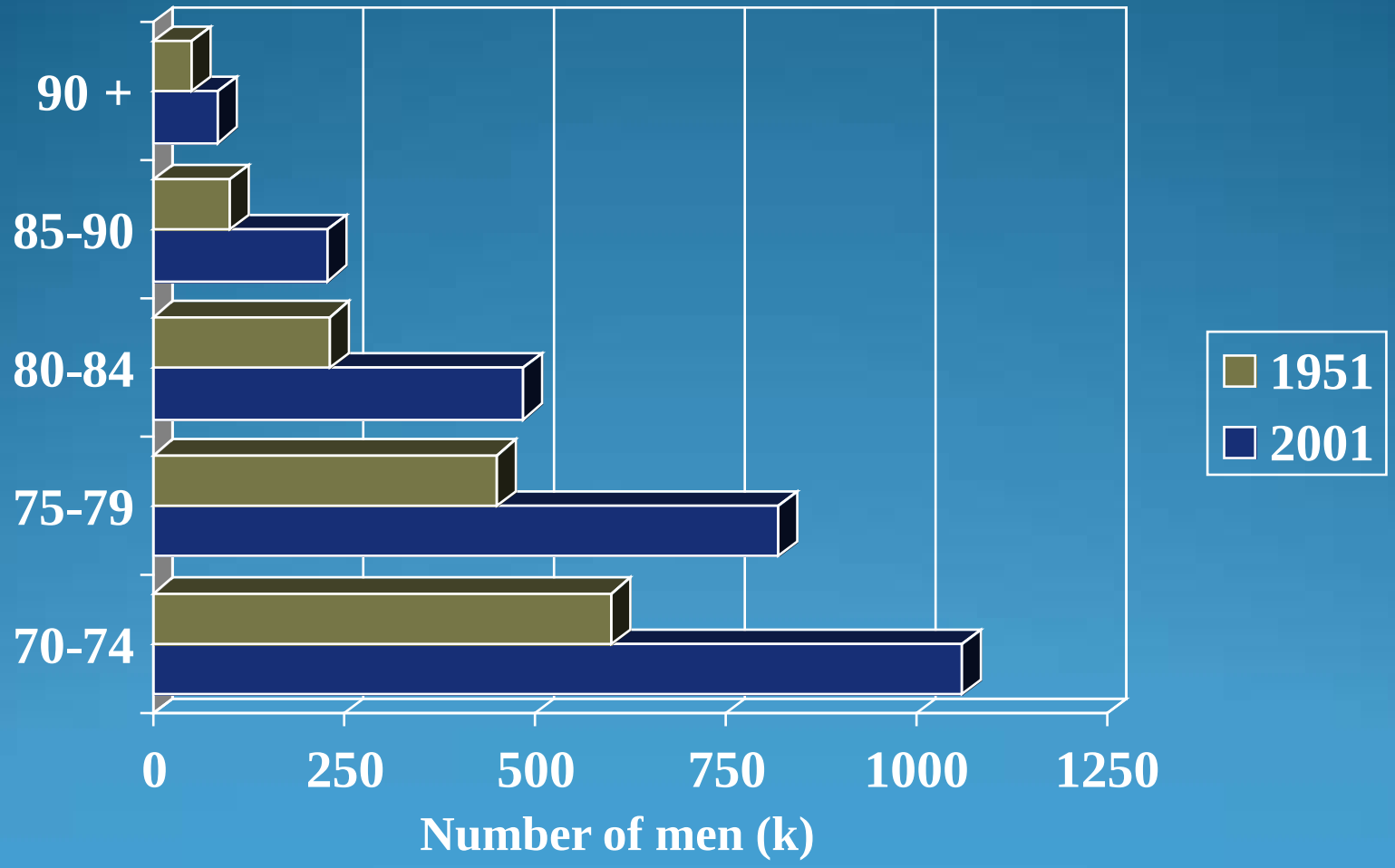
- Challenges
  - An Ageing population
  - Growing public awareness & expectations
  - New therapies
- Why does the prostate enlarge?
- How does BPH cause symptoms?
- Assessment & Investigation
- Medical Management
- Surgical management

Population census



UK Census
Number of men over 70

87% increase



BPH ~ some statistics

- 43% of men between 60 & 69 years of age have LUTS.
- In men over 80 years of age 88% have histological BPH
- In a population survey across Europe >75% of 1700 men believed that BPH led to cancer
- BPH Affects 2,500,000 men in U.K.
- In 2004 there were 40,000 TURPs per annum

BPH

BPH progression

- Increasing symptoms
- Acute retention
- Chronic retention

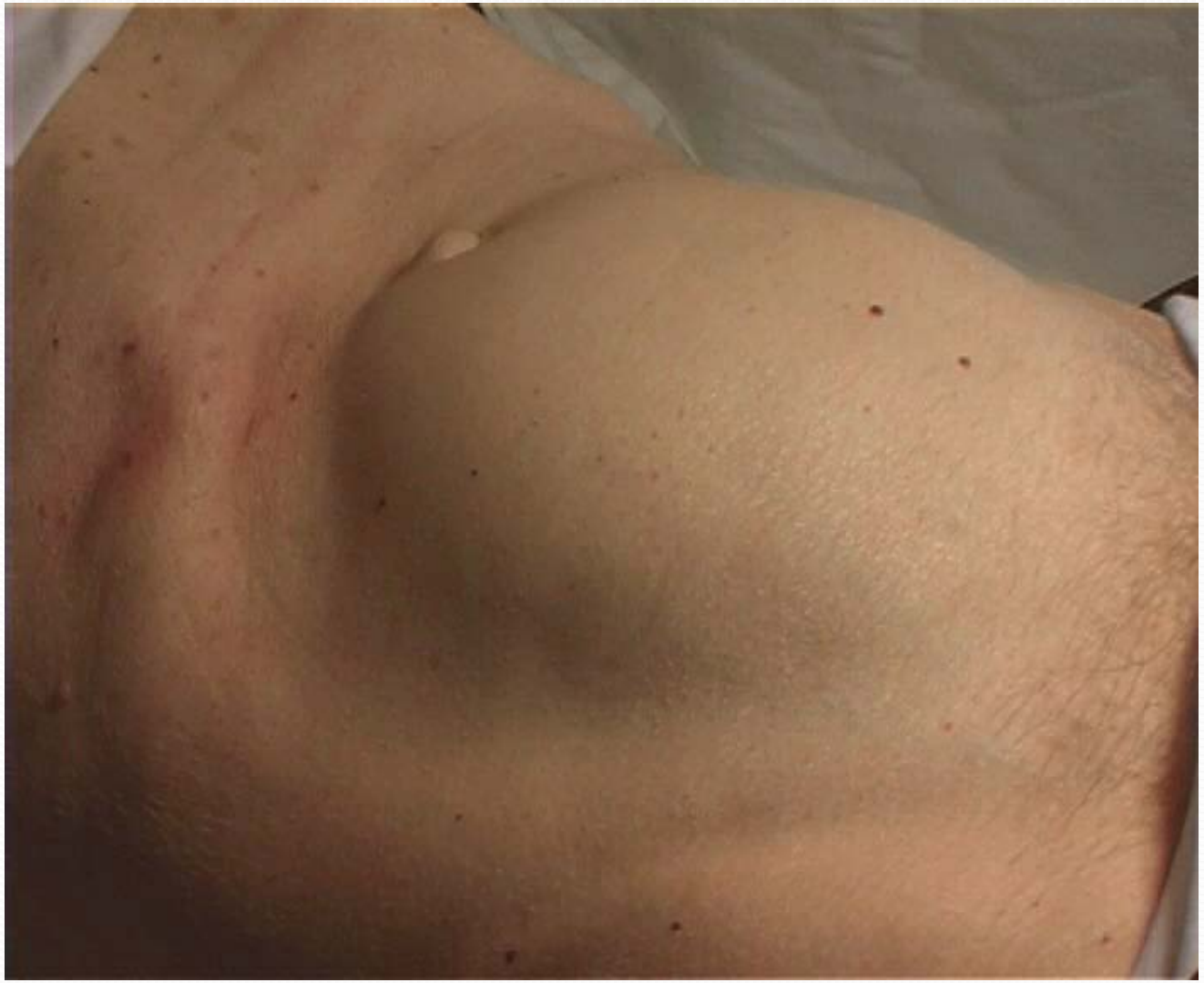
Shared Care in BPH

Practitioners with an interest… PGDip(Urol)

Objective is to provide explanation and reassurance where appropriate and divide patients into those with:

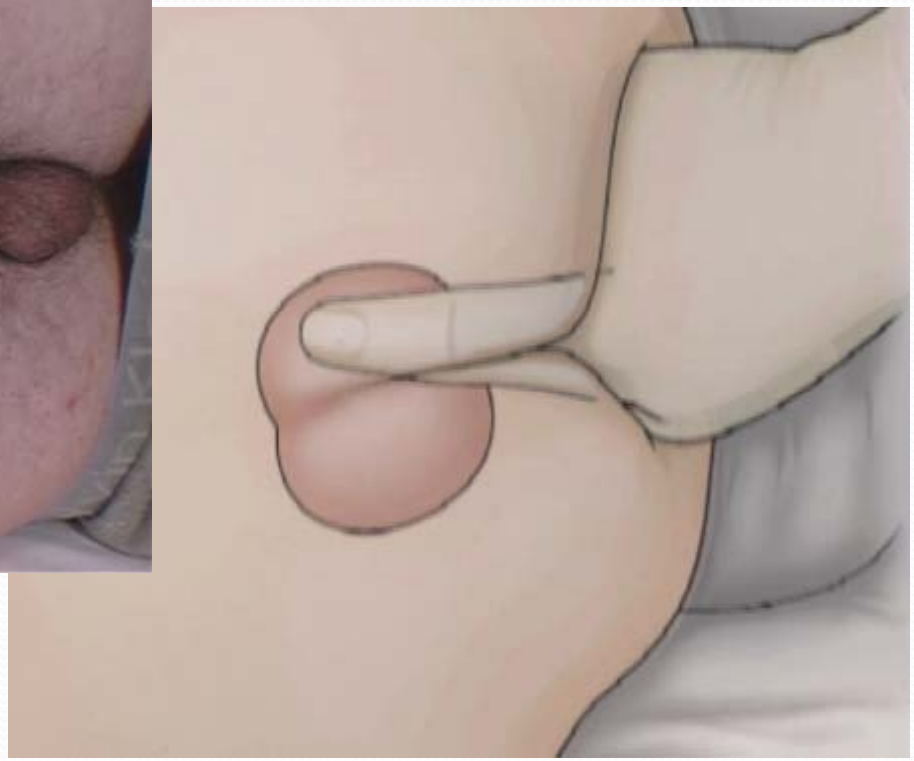
- Mild symptoms & minimal bother
- Moderate symptoms & bother
- Severe symptoms with disturbed life
  Chronic retention
  Suspicion of carcinoma prostate or bladder

Examination *Inspection*



Examination

DRE



How to assess LUTS

- History
- Examination: Abdomen, Ext Genitalia, PR
- MSU, Creatinine, PSA, IPSS Score, F/Vol chart
- Uroflow testing
- Ultrasound: bladder, prostate size
  Post micturition volume
- Urodynamics
- Flexible cystoscopy

How to assess LUTS

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Department of Urology

Mr BW Ellis & Mr RP Kulkarni

IPSS Symptom Score

for bladder outflow obstruction

Date of assessment ___/___/___

Surname _____ Hosp No _____

Firstname _____ M / F

Add _____ DOB _____

_____

_____

_____ Pcode _____

GP _____

	Place a tick or circle in one of the colums below for each question					
The questions below refer to the way your water has behaved, on average, over the last month	Not at all	Hardly ever	Less than half the time	About half the time	More than half the time	Almost always
1. How often has your bladder still felt full after passing water?						
2. How often have you had to 'go again' within two hours of passing water?						
3. How often do you stop and start several times during the passage of water?						
4. How often have you found it difficult to postpone passing water?						
5. How often was the flow of urine weak?						
6. How often did you need to push or strain to start passing water?						
7. How often have you tended to get up at night?	None	Once	Twice	Three times	Four times	Five or more
This column scores:	0	1	2	3	4	5

Total IPSS Score ____

Quality of Life due to urinary symptoms	Delighted	Pleased	Mostly satisfied	Barely satisfied	Not very happy	Very unhappy	Terrible
If you had to spend the rest of your life with your urinary symptoms just the way they are now, how would you feel about it?	0	1	2	3	4	5	6

Bother Score ____

BWE V2.1 July 1999

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Frequency Volume chart

Surname _____ Hosp No _____

Firstname _____ M / F

Add _____ DOB _____

_____

_____

_____ Pcode _____

GP _____

For this test, you will need to use a plastic measuring jug; a cheap one from a hardware store is satisfactory. Choose any three days when you will not have to go out from rich (otherwise you will have to carry your jug everywhere). The three days do not have to be in a row. Starting when you get up measure the volume and record the time every time you pass water. The upper part of the chart is for the day and the lightly shaded section below for the night. Consider the night as starting when you go to bed rather than when it gets dark! During these days drink just as you would normally. From these numbers, we can learn much more about how your bladder is behaving and whether your kidneys produce urine as they should. If you have a calculator, it would help us if you could add up the volumes for each day and night and enter them in the boxes in the table. Enter in the box to the right how many hours, on average, you spend in bed each night.

____ Hours/night

	Day 1	Date	Day 2	Date	Day 3	Date
	Time	Volume (millilitres)	Time	Volume (millilitres)	Time	Volume (millilitres)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day)
	times	mls	times	mls	times	mls
1						
2						
3						
4						
5						
6						
7						
8						
9						
	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night)
	times	mls	times	mls	times	mls
	3 day daytime vol mls =		3 day nighttime vol mls =		Hours (day)	Post late Day mean
	3 day voids (day) number =	Vav day mls =	3 day voids (night) number =	Vav night mls =	Hours (night)	Post late Night mean

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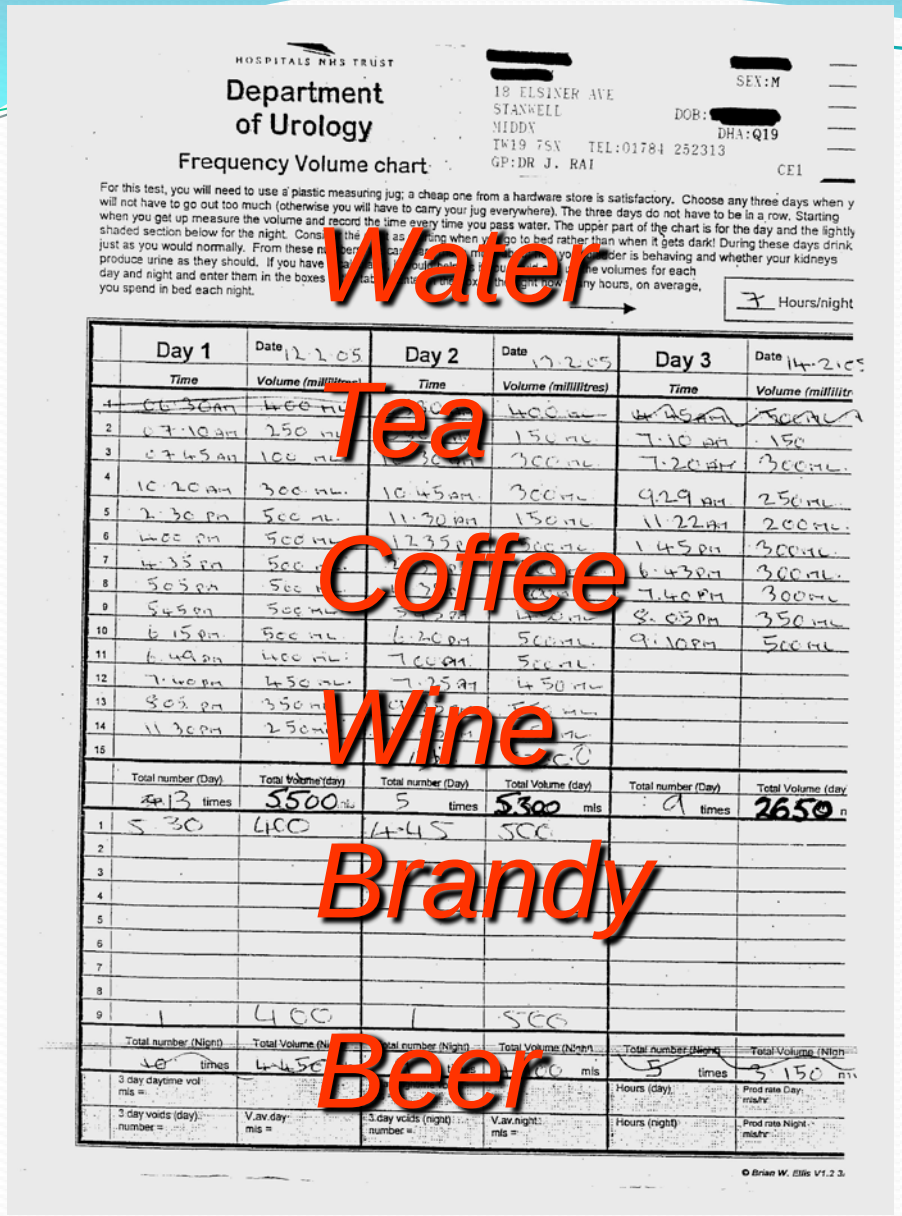

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GP:DR J. RAI

SEX:M
DOB:[redacted]
DHA:Q19
CE1

Frequency Volume chart

For this test, you will need to use a plastic measuring jug; a cheap one from a hardware store is satisfactory. Choose any three days when y will not have to go out too much (otherwise you will have to carry your jug everywhere). The three days do not have to be in a row. Starting when you get up measure the volume and record the time every time you pass water. The upper part of the chart is for the day and the lightly shaded section below for the night. Cons[illegible] the[illegible] as [illegible]ning when y[illegible] go to bed rather than when it gets dark! During these days drink just as you would normally. From these m[illegible] ca[illegible] m[illegible] yo[illegible]der is behaving and whether your kidneys produce urine as they should. If you have [illegible] day and night and enter them in the boxes [illegible] e volumes for each [illegible]y hours, on average, you spend in bed each night.

7 Hours/night

	Day 1 Time	Day 1 Volume (millilitres)	Day 2 Time	Day 2 Volume (millilitres)	Day 3 Time	Day 3 Volume (millilitres)
1	06:30am	400 ml		400 ml	4:45am	500 ml
2	07:10am	250 ml		150 ml	7:10 pm	150
3	07:45am	100 ml		300 ml	7:20 PM	300 ml
4	10:20am	300 ml	10:45am	300 ml	9:29 PM	250 ml
5	2:30 pm	500 ml	11:30 PM	150 ml	11:22 PM	200 ml
6	4:00 pm	500 ml	12:35	[illegible]	1:45 pm	300 ml
7	4:35 pm	500 [illegible]	[illegible]	[illegible]	6:43pm	300 ml
8	5:05 pm	500 [illegible]	[illegible]	[illegible]	7:40 PM	300 ml
9	5:45 pm	500 ml	[illegible]	[illegible]	8:05PM	350 ml
10	6:15 pm	500 ml	6:20 PM	500 ml	9:10PM	500 ml
11	6:49 pm	400 ml	7:00 PM	500 ml		
12	7:40 pm	450 ml	7:35 PM	450 ml		
13	8:05 pm	350 ml	[illegible]	[illegible]		
14	11:30PM	250 ml	[illegible]	[illegible]		
15			[illegible]	[illegible]		
	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day
	13 times	5500 ml	5 times	5300 mls	9 times	2650 m
1	5 30	400	4:45	500		
2						
3						
4						
5						
6						
7						
8						
9	1	400	1	500		
	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night
	10 times	4450	[illegible]	[illegible] mls	5 times	3150 m
	3 day daytime vol mls =				Hours (day)	Prod rate Day: ml/hr
	3 day voids (day) number =	V.av.day mls =	3 day voids (night) number =	V.av.night mls =	Hours (night)	Prod rate Night ml/hr

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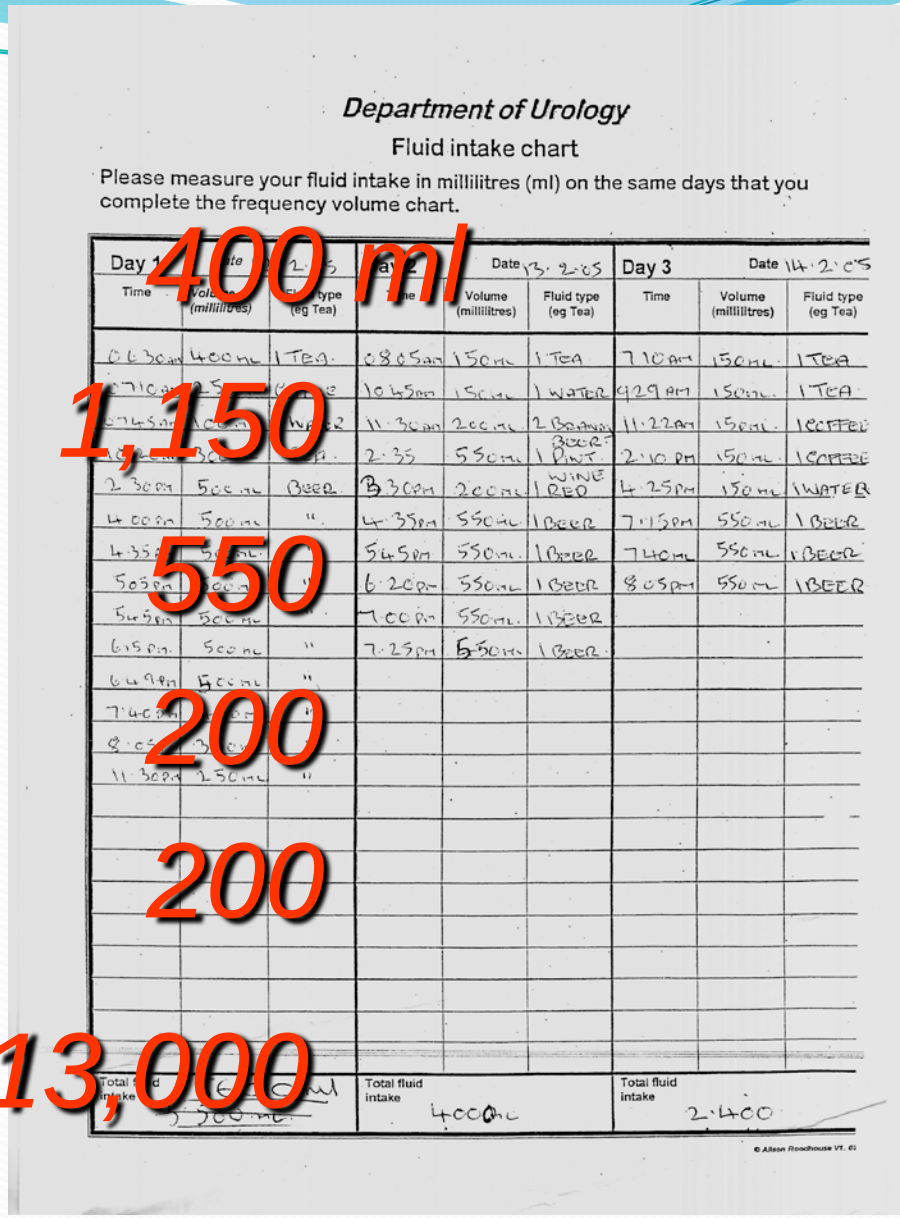

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Fluid intake chart

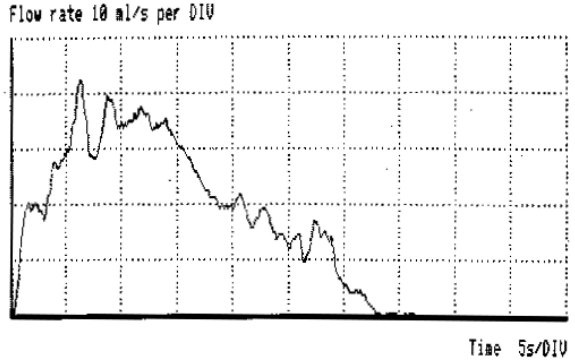
Please measure your fluid intake in millilitres (ml) on the same days that you complete the frequency volume chart.

Day 1 Time	Day 1 Volume (millilitres)	Day 1 Fluid type (eg Tea)	Day 2 Time	Day 2 Volume (millilitres)	Day 2 Fluid type (eg Tea)	Day 3 Time	Day 3 Volume (millilitres)	Day 3 Fluid type (eg Tea)
06:30am	400 ml	1 TEA	08:05am	150 ml	1 TEA	7:10 AM	150 ml	1 TEA
07:10am	[illegible]	[illegible]	10:45pm	150 ml	1 WATER	9:29 AM	150 ml	1 TEA
07:45am	[illegible]	[illegible]	11:30pm	200 ml	2 BRANDY	11:22AM	150 ml	1 COFFEE
[illegible]	[illegible]	[illegible]	2:35	550 ml	1 BEER PINT	2:10 PM	150 ml	1 COFFEE
2:30pm	500 ml	BEER	3:30pm	200 ml	1 WINE RED	4:25PM	150 ml	1 WATER
4:00pm	500 ml	"	4:35pm	550 ml	1 BEER	7:15PM	550 ml	1 BEER
4:35	[illegible]	[illegible]	5:45pm	550 ml	1 BEER	7:40ML	550 ml	1 BEER
5:05pm	[illegible]	[illegible]	6:20pm	550 ml	1 BEER	8:05pm	550 ml	1 BEER
5:45pm	500 ml	"	7:00pm	550 ml	1 BEER			
6:15pm	500 ml	"	7:25pm	550 ml	1 BEER			
6:49pm	500 ml	"						
7:40pm	[illegible]	[illegible]						
8:05	[illegible]	[illegible]						
11:30PM	250 ml	"						
Total fluid intake	[illegible]		Total fluid intake	4000 ml		Total fluid intake	2400	

© Alison Roadhouse V1. 01

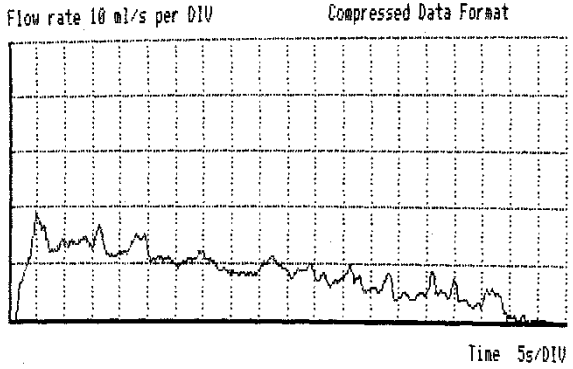
Water 400 ml
Tea 1,150
Coffee 550
Wine 200
Brandy 200
Beer 13,000

Flow patterns



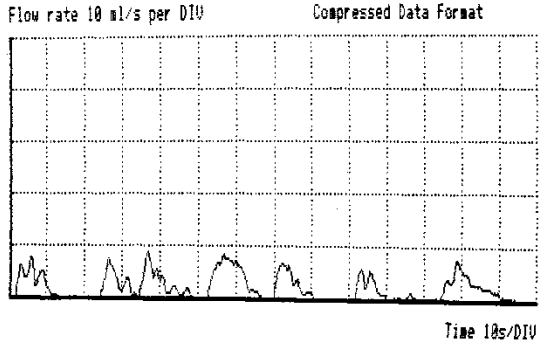
UROFLOWMETRY RESULTS

Voided Volume	672 (ml)	Voiding Time	36 (sec)
Max Flow rate	42 (ml/s)	Flow Time	35 (sec)
Average Flow rate	19 (ml/s)	Time to Max Flow	5 (sec)



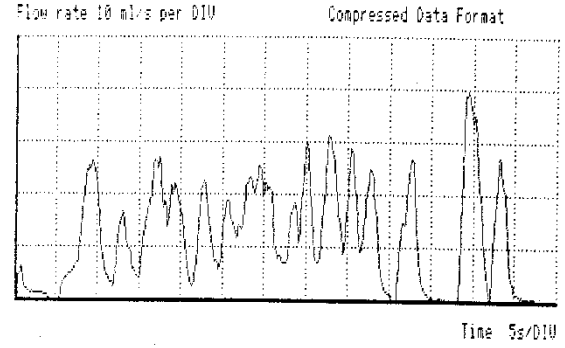
UROFLOWMETRY RESULTS

Voided Volume	800 (ml)	Voiding Time	94 (sec)
Max Flow rate	19 (ml/s)	Flow Time	93 (sec)
Average Flow rate	8 (ml/s)	Time to Max Flow	3 (sec)



UROFLOWMETRY RESULTS

Voided Volume	319 (ml)	Voiding Time	132 (sec)
Max Flow rate	8 (ml/s)	Flow Time	86 (sec)
Average Flow rate	3 (ml/s)	Time to Max Flow	35 (sec)



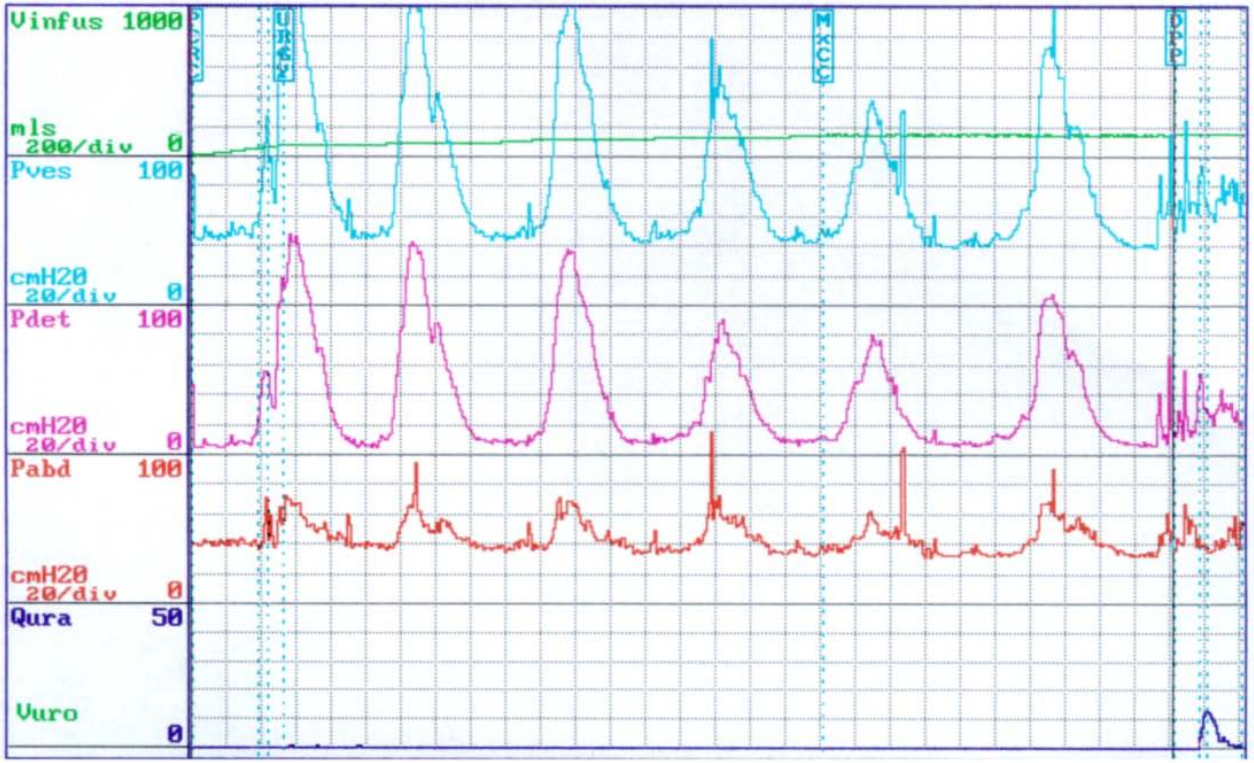
UROFLOWMETRY RESULTS

Voided Volume	201 (ml)	Voiding Time	62 (sec)
Max Flow rate	39 (ml/s)	Flow Time	40 (sec)
Average Flow rate	5 (ml/s)	Time to Max Flow	53 (sec)

An unstable bladder

Voiding Mode Results
Start time 13:46:24, Duration 58s 8\10ths s
Detrusor premicturition pressure **8**cm H20.

Detrusor pressure at opening **30**cm H20.
Max. flow **13**ml/sec after **6**secs with detrusor pressure **28**cm H20.
Flow time **35**secs. Voiding time **35**secs.
Voided volume **164**ml. Average flow rate **5**ml/sec.



Nocturia

- Light sleeper
- Impaired bladder capacity
- Excessive drinking
- Unstable bladder
- Gross dependant oedema
- True nocturnal polyuria

Nocturnal polyuria

15						
	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day)	Total number (Day)	Total Volume (day)
	4 times	980 mls	4 times	1085 mls	4 times	1035 mls
1	0100	350	0200	450	0220	650
2	0340	350	0445	450	0615	540
3	0730	430	0730	420	0730	260
4						
5						
6						
7						
8						
9						
	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night)	Total number (Night)	Total Volume (Night)
	3 times	1130 mls	3 times	1320 mls	3 times	1450 mls
	3 day daytime vol mls = 3100	3 day voids (day) number = 12	V av day mls = 258	3 day Vol 7000	Hours (day) 15	Prod rate Day mls/hr 68
	3 day nighttime vol mls = 3900	3 day voids (night) number = 9	V av night mls = 433	Mean 24hr vol 2333	Hours (night) 9	Prod rate Night mls/hr 144

Please Turn Over

Nocturnal polyuria

- Definitions varied. >33% of 24hr during the night
- Check drinking habits, offer fluid advice
- Desmopressin (not with heart failure or hypertension and monitor serum sodium)
- Afternoon diuretic
- Legs up?
- Aspirin?

Treatment Options in BPH

- Reassure
- Lifestyle advice (Self management)
- Drugs
- Surgery
- Catheter

Treatment Options in BPH

Drugs

- Phytotherapy
- Antispasmodics
- Alpha adrenergic blockers
- 5 alpha reductase inhibitors
- Combinations

Treatment Options in BPH

Alpha-1 Blockers

Terazosin, Doxazocin, Alfuzosin and Tamsulosin.

- Rapid relief of symptoms
- Relaxes smooth muscle in prostate and at bladder neck
- Reduces bladder sensitivity
- Moderate side effects

Treatment Options in BPH

5-alpha reductase Inhibitors

Finasteride and Dutasteride

- Block conversion of testosterone to Dihydrotestosterone (DHT)
- Dihydrotestosterone levels down by 70%
- Modest Increase in serum testosterone
- Decrease in Prostate Specific Antigen (PSA)
- 25% reduced incidence of prostate cancer

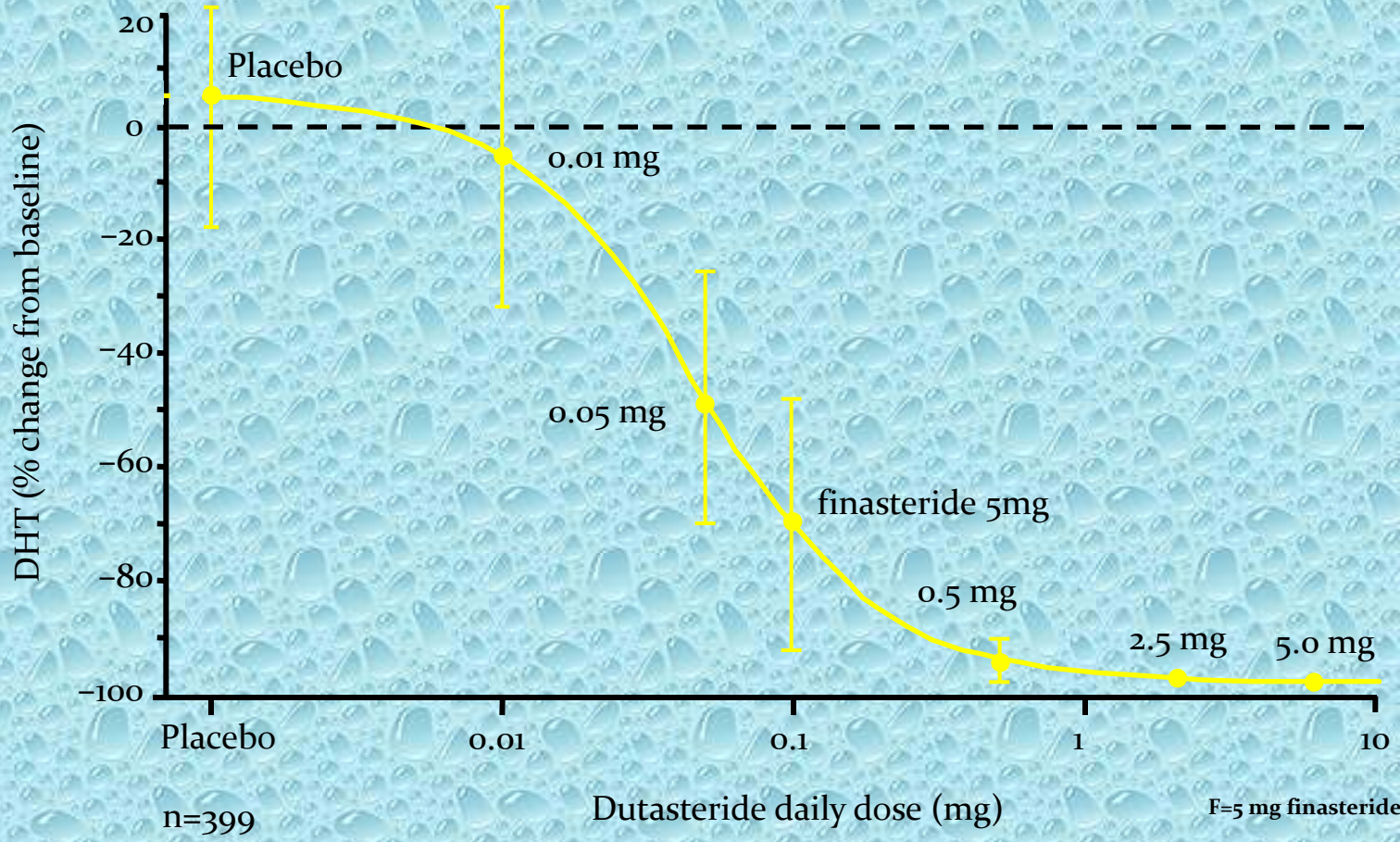
Treatment Options in BPH

5-alpha reductase inhibitors

- Gradual reduction in prostate volume (20%)
- Slow increase in flow rate (20%)
- Progressive fall in symptom score (20%)
- Risk of impaired sexual performance (5%)
- Minimal side effects
- Takes 3-4 months to give symptomatic relief

Dutasteride

95% DHT suppression



Clark RV et al. J Clin Endocrin Met 2004; 89(5): 2179-2184.

BPH treatment options

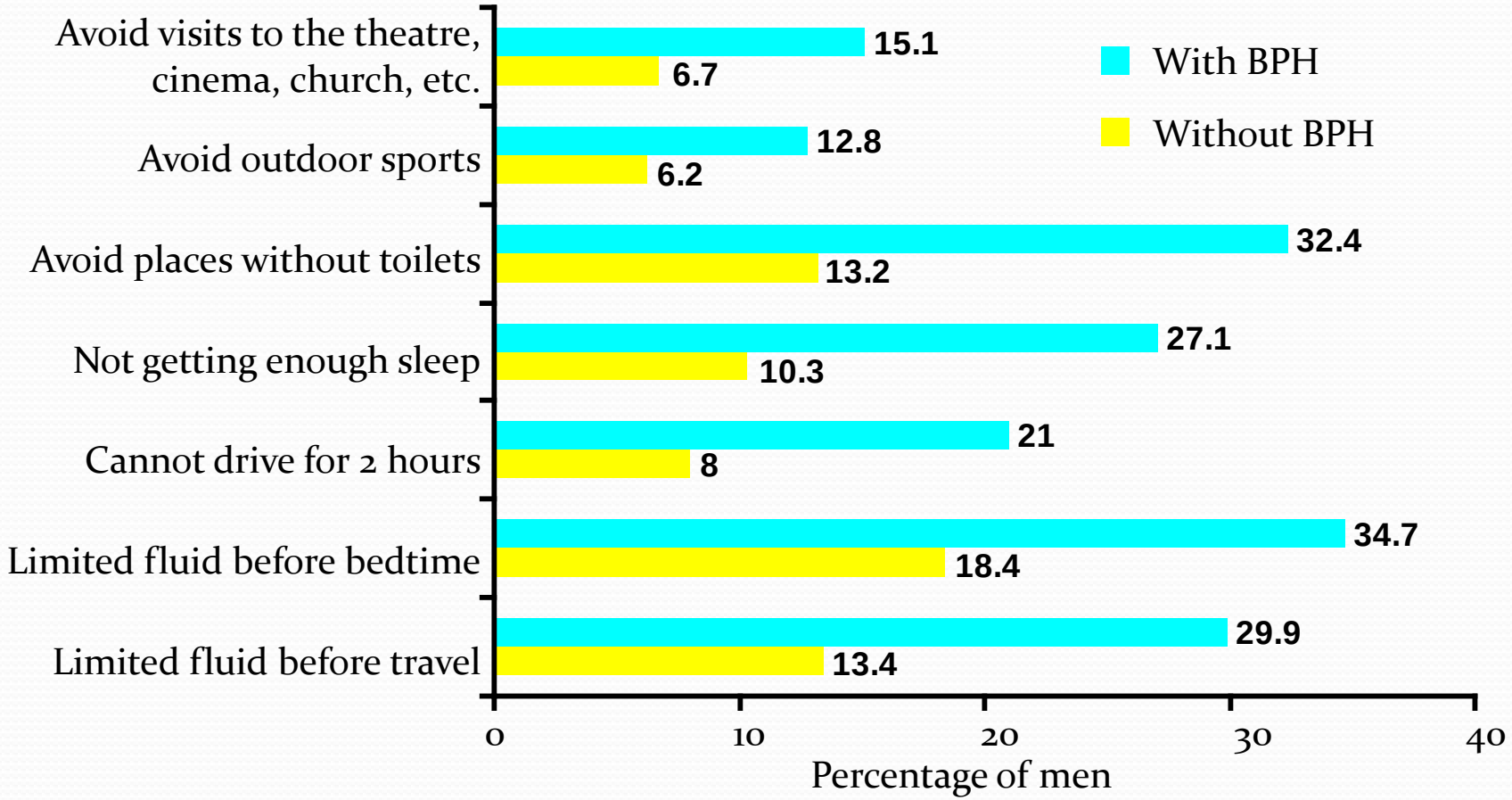
Alpha-blocker vs. 5ARIs?	5ARIs	Alpha-blockers
Effect on underlying disease	✓	
Reduce prostate volume/PSA	✓	
Improve symptoms/flow	✓	✓
Rapid onset of symptom relief		✓
Maintain symptom/flow improvements	✓	✓
Reduce longer-term risk of AUR and surgery	✓	

Marberger M et al. Eur Urol 2004; 45: 411-419.

Does it matter if progression occurs?

Impact of LUTS on daily living

Percentage of men in whom urinary symptoms affected living activities at least some of the time



Adapted from Garraway WM et al. Br J Gen Pract 1993; 43: 318-321.

BPH is a progressive condition

Risk factors for BPH progression/AUR[1]

- Prostate Volume >30 cc
- PSA >1.4 ng/ml
- Age ≥70 with LUTS
- Flow rate <12 ml/s
- Moderate/severe LUTS (IPPS >7)
- Post void residual volume (PVR) >100 ml
- Hesitancy

1. Speakman MJ et al. BJU Int 2004; 93: 985-990.

BPH treatment options

BAUS 2004 treatment recommendations

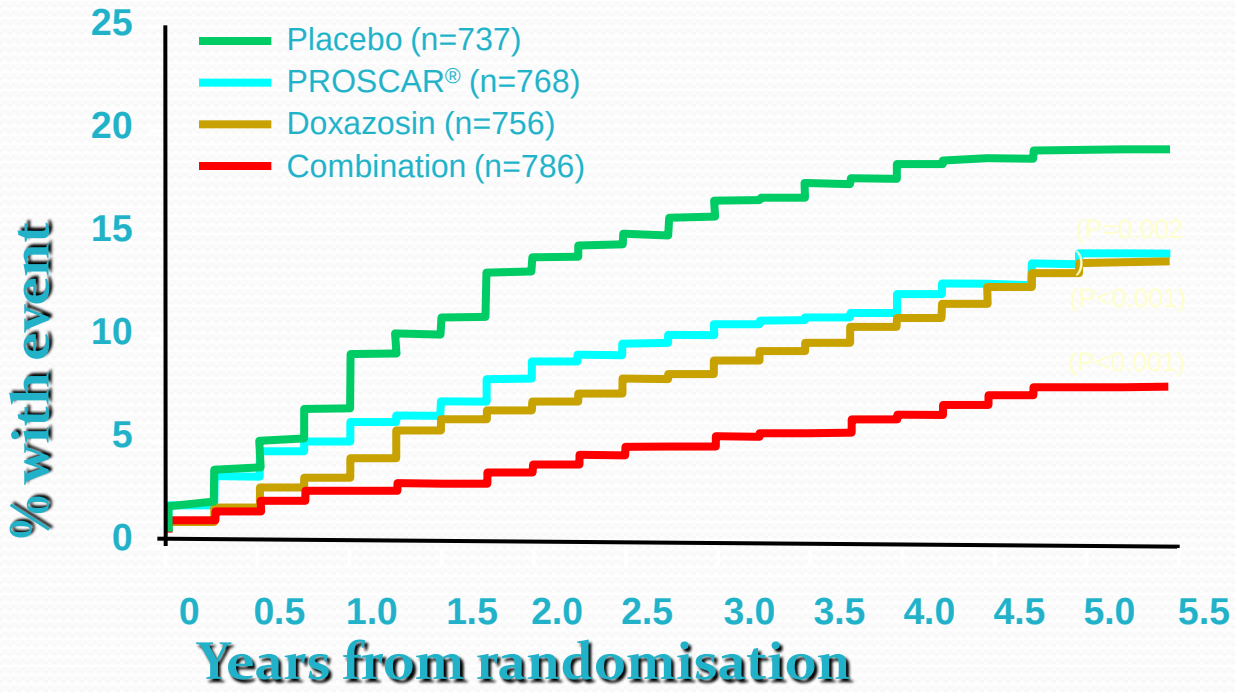
Indications for combination therapy

- Bothersome symptoms and significant risk factors for progression
- For patients unhappy to wait for the delayed effect of a 5ARI

Speakman MJ et al. BJU Int 2004; 93: 985-990

Impact of medical therapy on clinical progression of BPH

Cumulative incidence of BPH progression



Adapted from McConnell J et al. *N Engl J Med* 2003;349:2387-2398

BPH treatment options
Combination therapy (CombAT)

Study objective

To investigate the effects of **Dutasteride and Tamsulosin**, alone and in combination, on symptoms and long-term clinical outcomes in moderate-to-severe BPH patients[1]

Study endpoints

CombAT is an ongoing 4-year, randomised, double-blind, multicentre (446 investigators in 35 countries), parallel-group study in **4844 patients** at increased risk of BPH progression[1]

Primary endpoints are:[2]

1) Symptom improvement (change in IPSS from baseline) at 2 years
2) Rate of and time to AUR or BPH-related surgery at 4 years

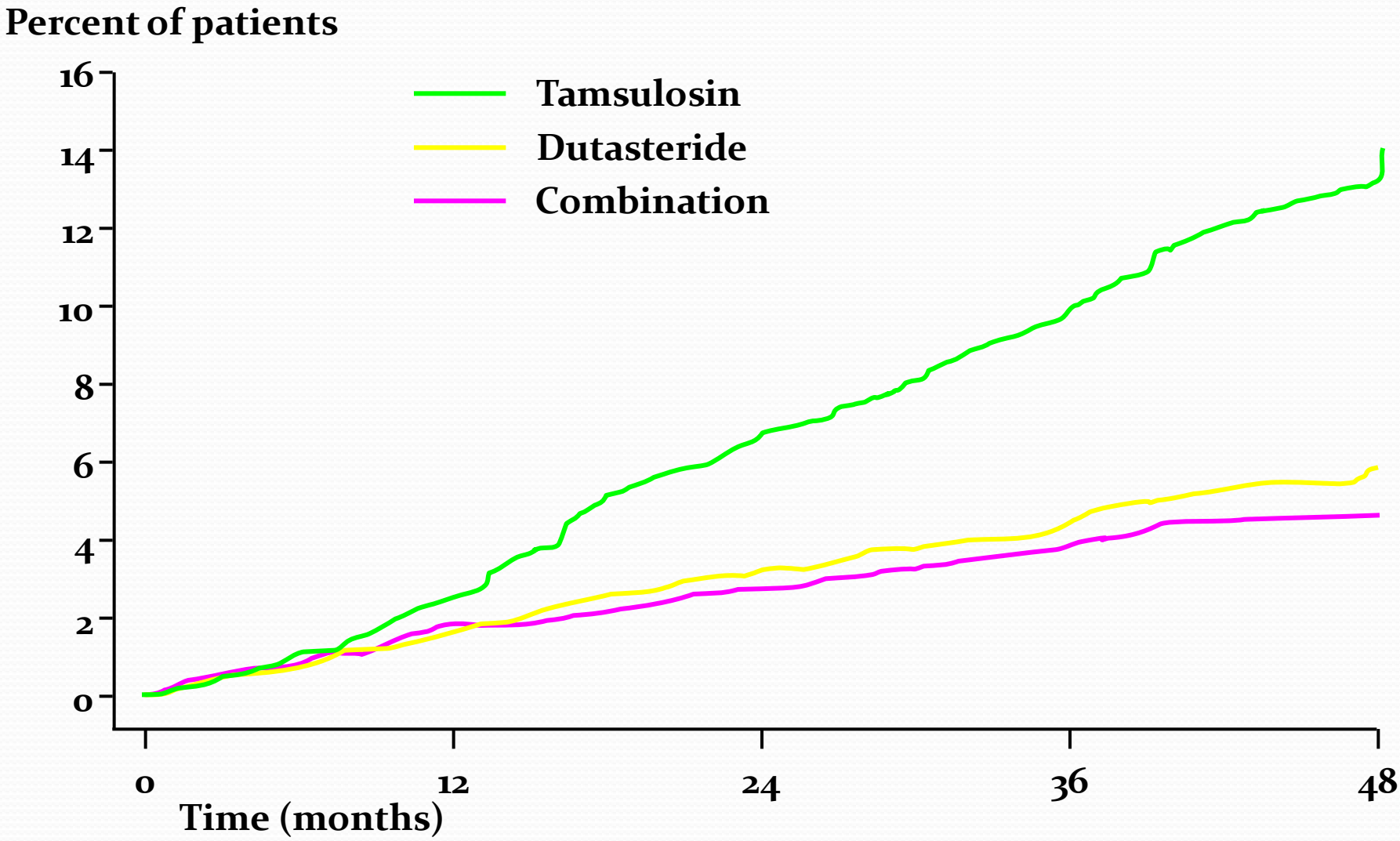
Secondary endpoints include among others:[2]

1) Improvement in Q_{max} at 2 years
2) Improvement in QoL (IPSS Q8) at 2 years
3) Reduction in PV and TZV at 2 years

CombAT is a GSK sponsored study

1. Roehrborn et al. J Urol 2008; 179:616-21
2. Siami et al. Contemp Clin Trials 2007;28:770-9

Time to first AUR or BPH-related surgery



Roehrborn C *et al.* Eur Urol In press (2009), doi:10:1016/j.eururo.2009.09.035

BPH treatment options

Benefits of combination therapy (CombAT- 2 year results)

- CombAT is the first study to demonstrate greater improvements in symptoms with combination therapy compared with both monotherapies within the first 12 months of treatment (from Month 3 vs. Dutasteride and from Month 9 vs. Tamsulosin)
- **Symptom improvement** by month 24, the primary endpoint was achieved: combination therapy was significantly ($p<0.001$) superior to each monotherapy
- **Maximum flow rate.** At month 24 improvements in from baseline were significantly ($p\leq0.006$) greater with combination therapy compared with each monotherapy
- **QoL (IPSS Q8).** At month 24, improvements from baseline were significantly ($p<0.001$) greater with combination therapy vs. either monotherapy

CombAT is a GSK sponsored study

1. Roehrborn et al. J Urol 2008; 179:616-21

BPH treatment options

BAUS 2004 treatment recommendations (1/2)

- Watchful waiting / Reassurance
  - LUTS not bothersome and no risk factors for disease progression
- Alpha-blocker
  - Bothersome symptoms but low risk of disease progression (prostate <30 cc and PSA <1.4 ng/ml)
- 5ARI
  - LUTS not bothersome and high risk of progression (prostate >30 cc or PSA >1.4 ng/ml)
- Combination therapy
  - Bothersome symptoms and significant risk factors for progression
  - For patients unhappy to wait for the delayed effect of a 5ARI

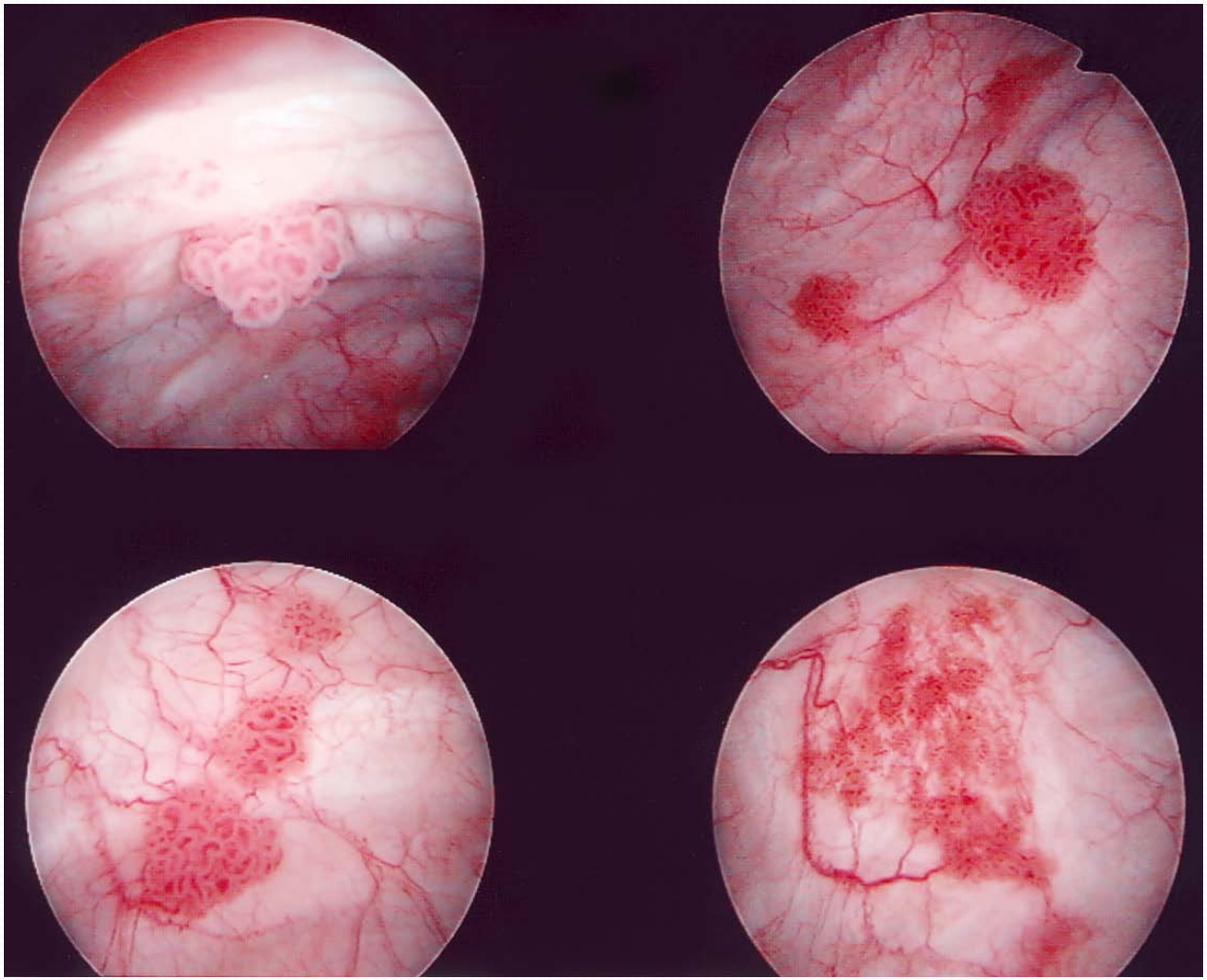
Speakman MJ et al. BJU Int 2004; 93: 985-990.

Treatment Options in BPH

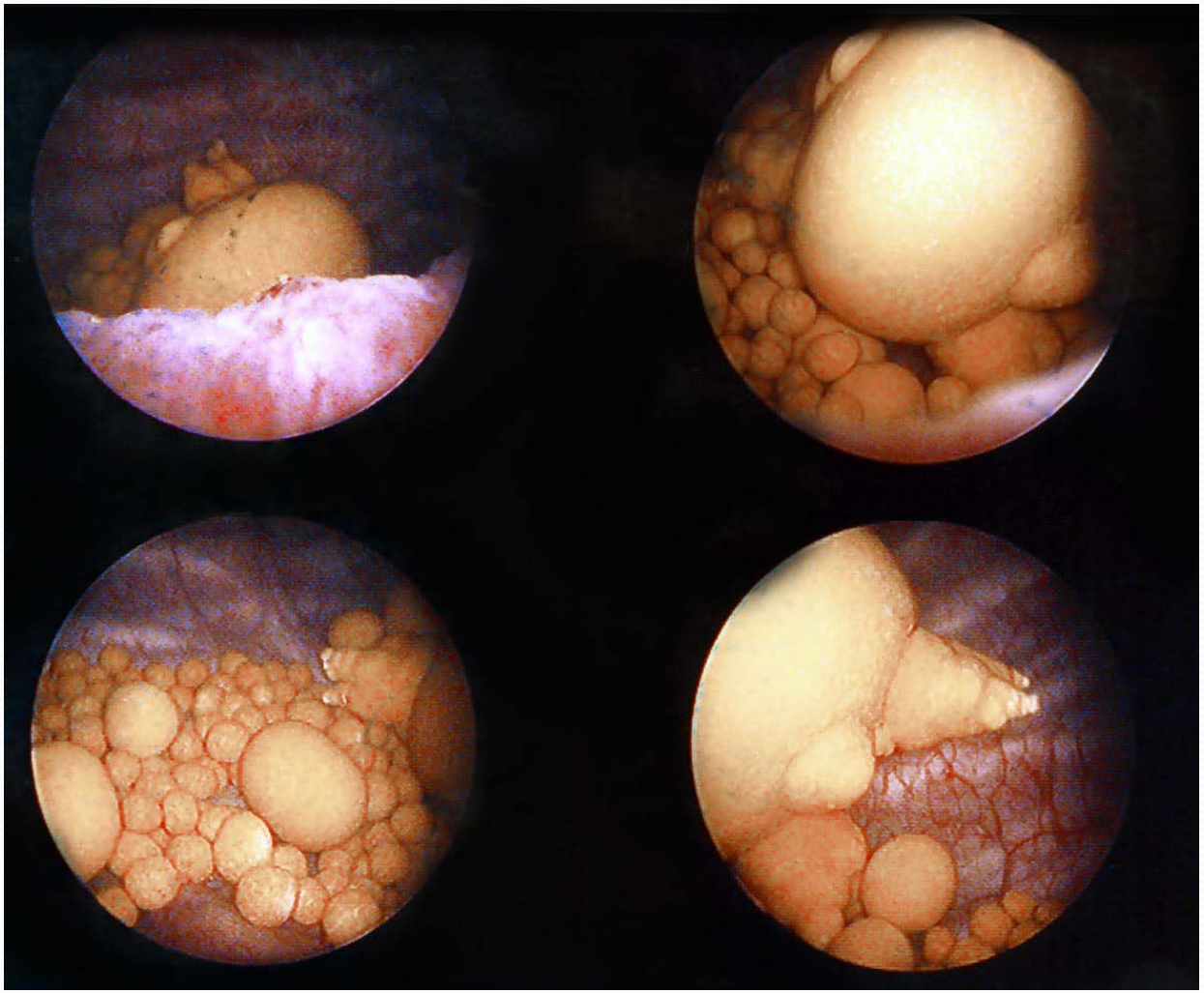
Surgical Options

- Open Prostatectomy
- Bladder Neck Incision
- TURP
- TUVP (Vaportrode)
- TUMT (Microwave power)
- TURF (Radiofrequency power)
- TUNA (Needle ablation)
- Laser prostatectomy Green light
- Laser prostatectomy Holmium

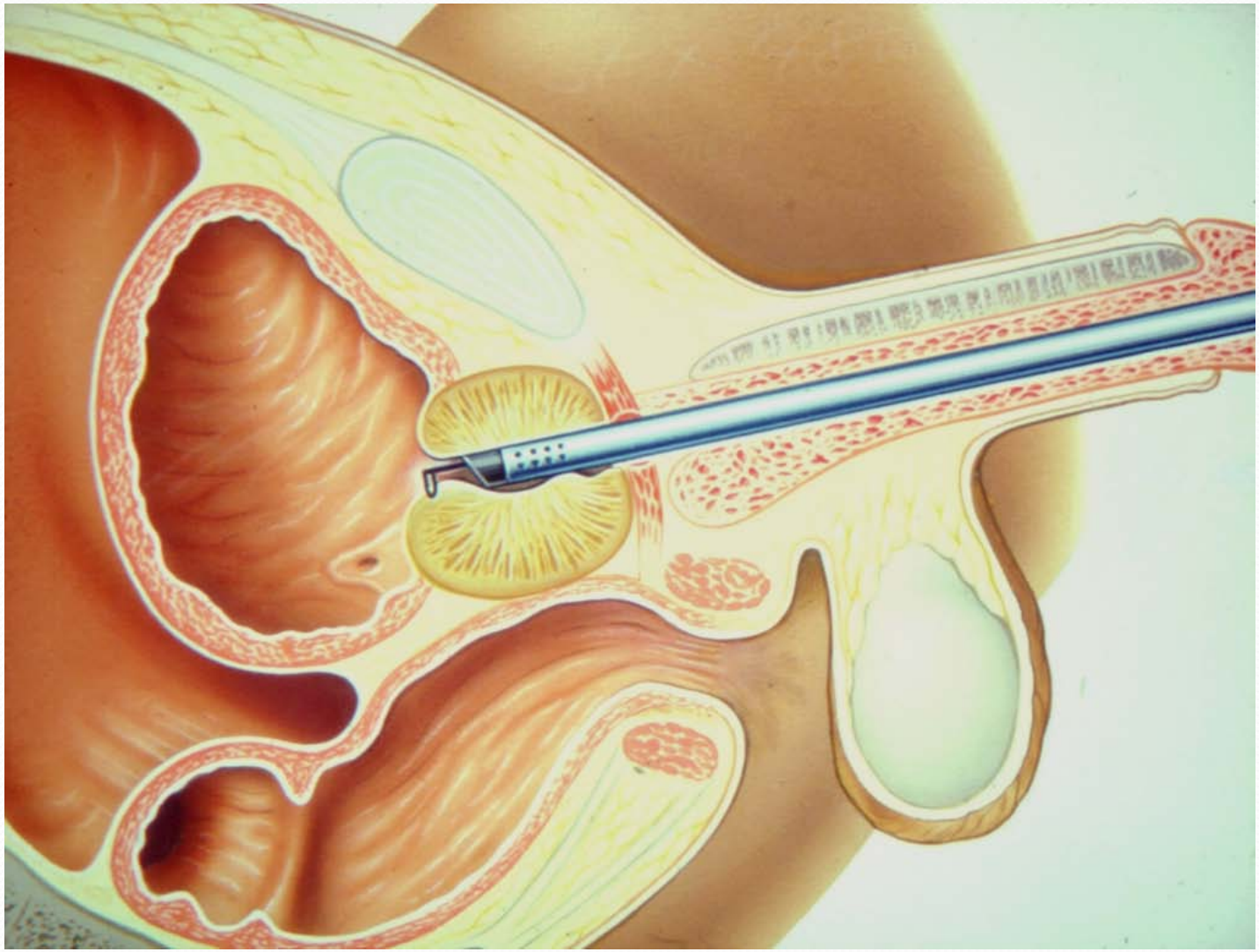
Have a good look first



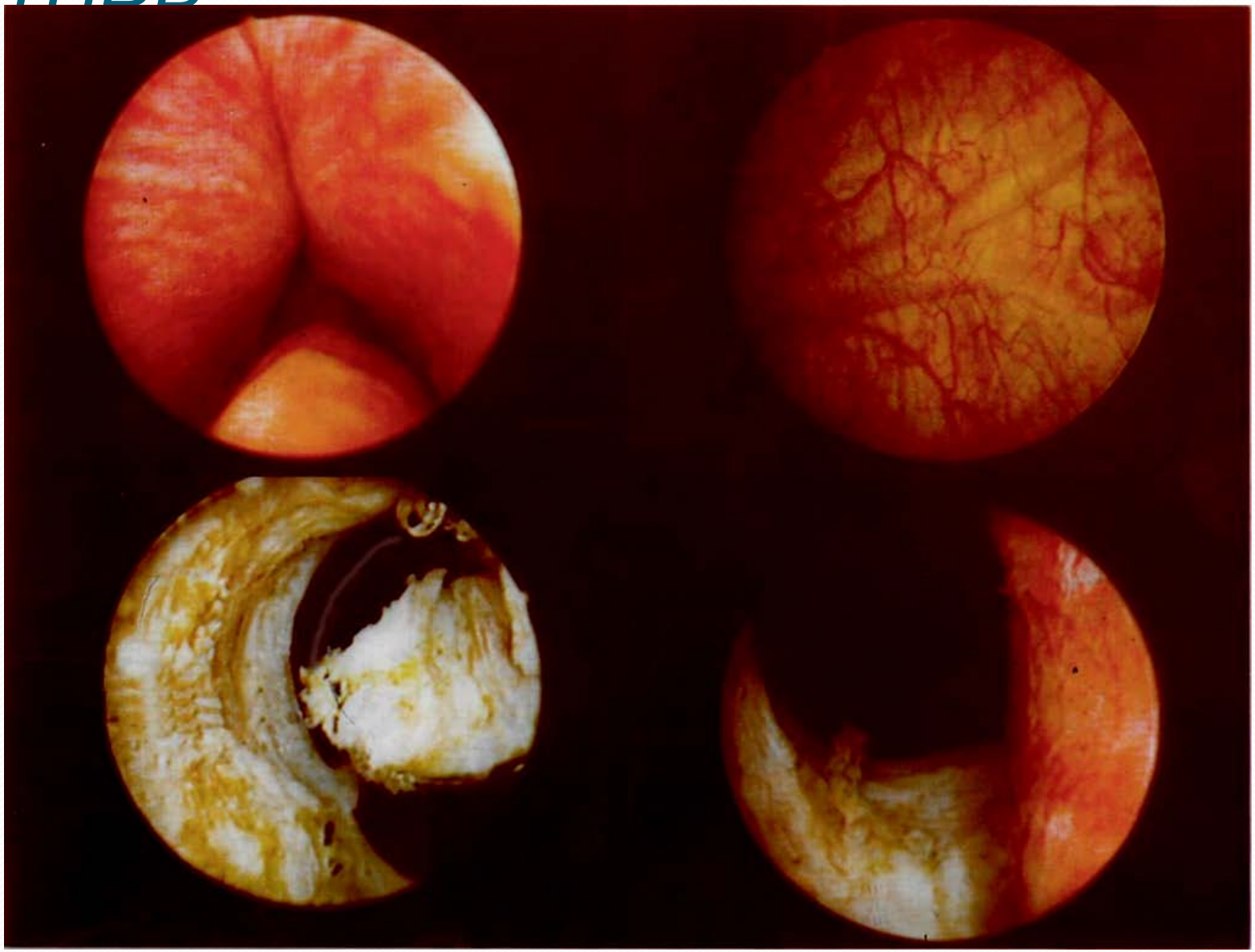
Have a good look first



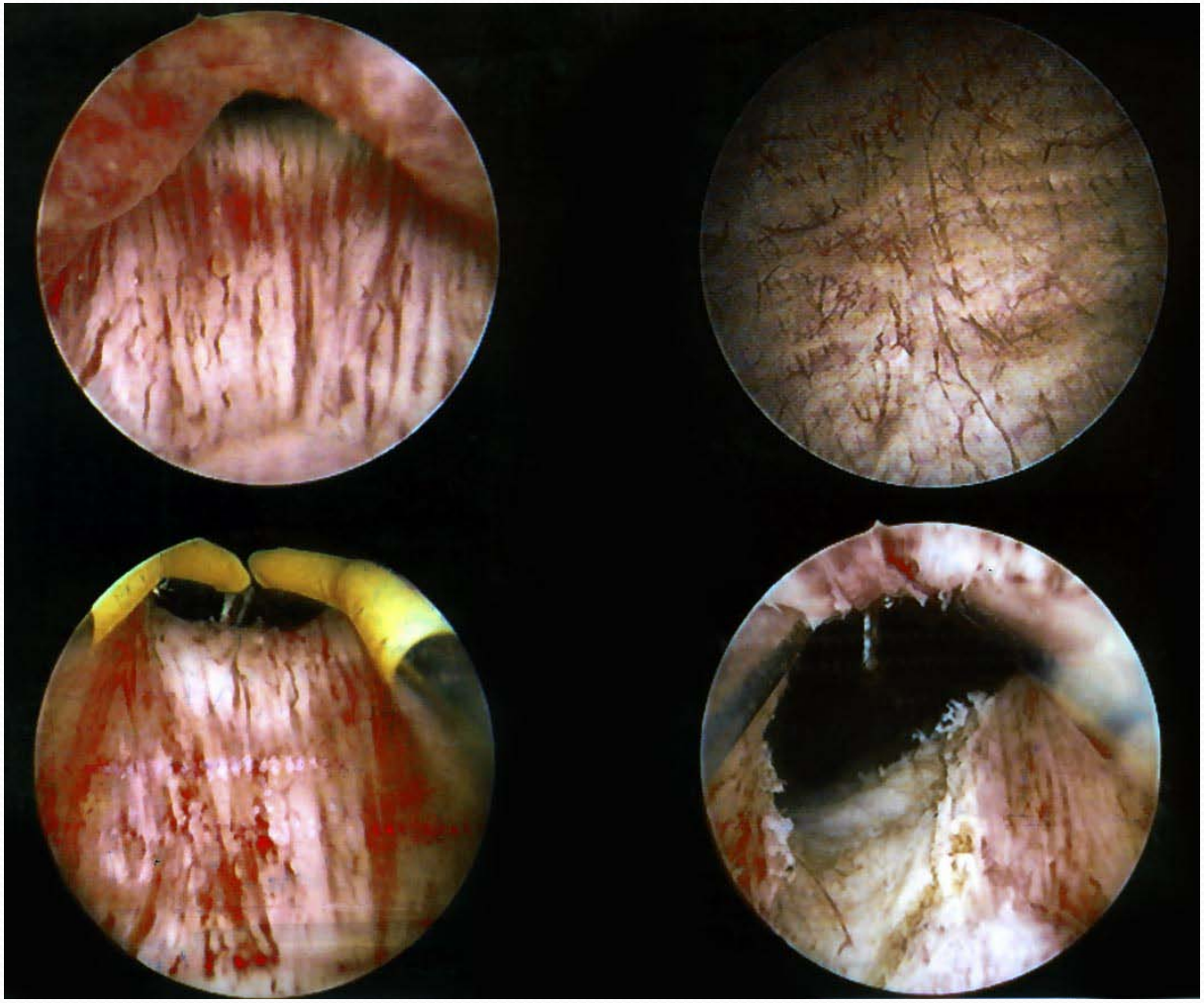
TURP



TURP

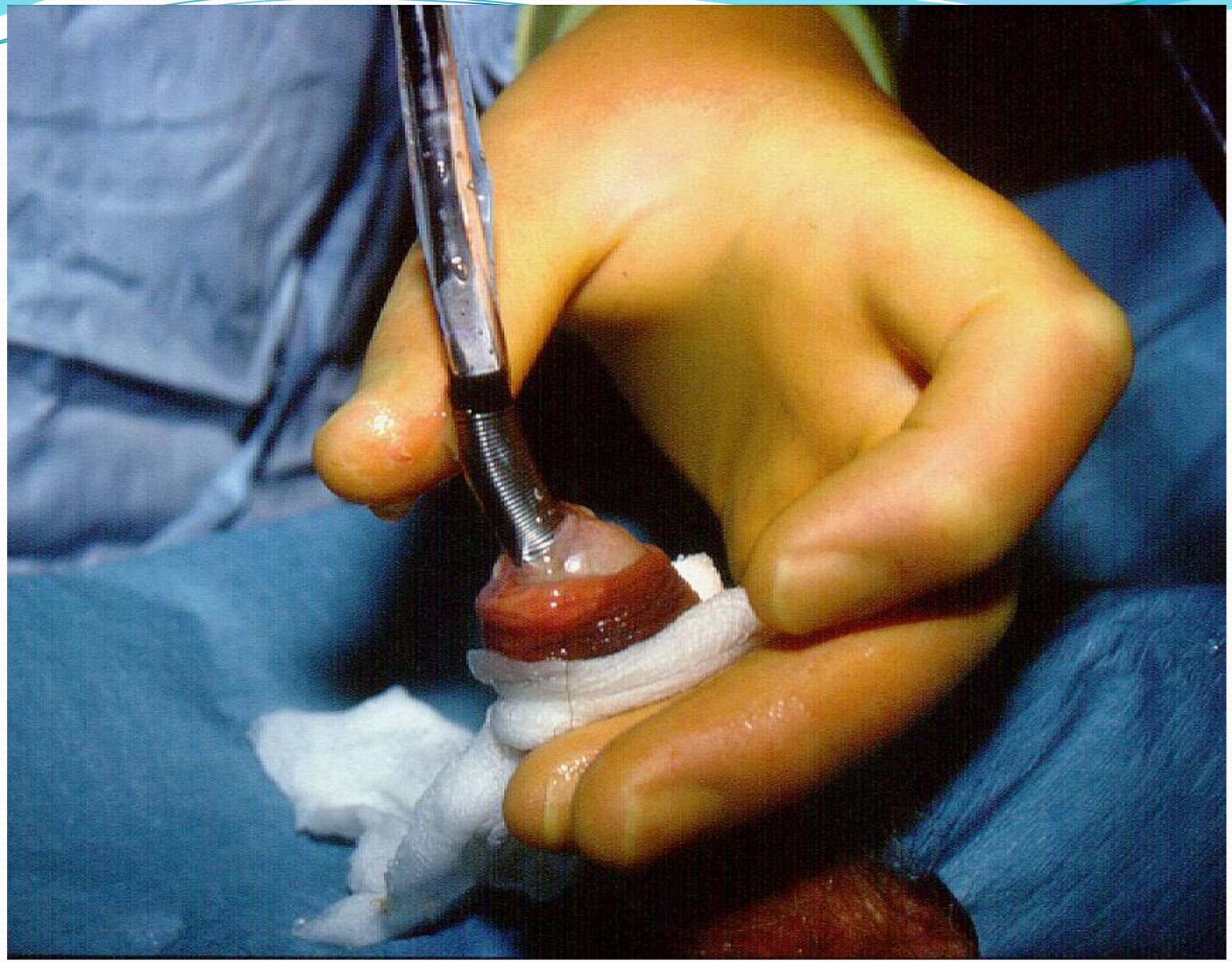


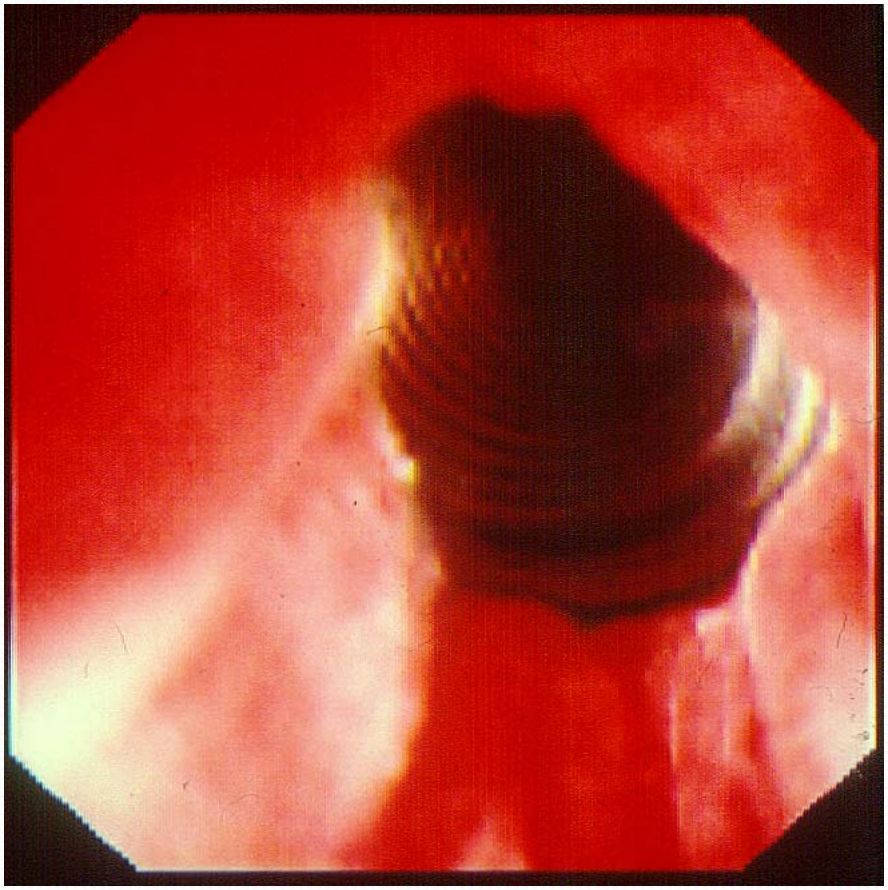
Bladder Neck Incision

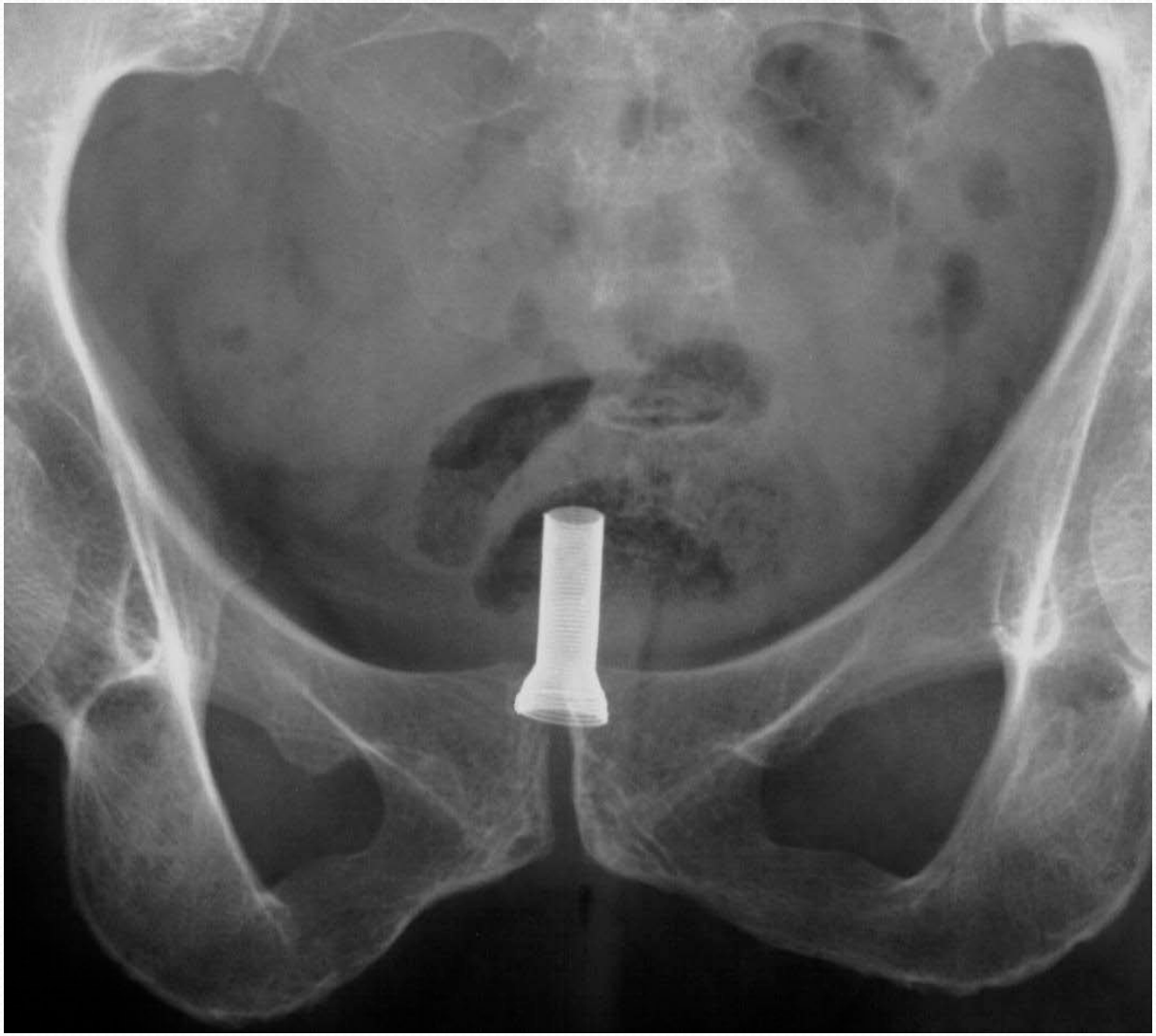


Thermo-expandable stent

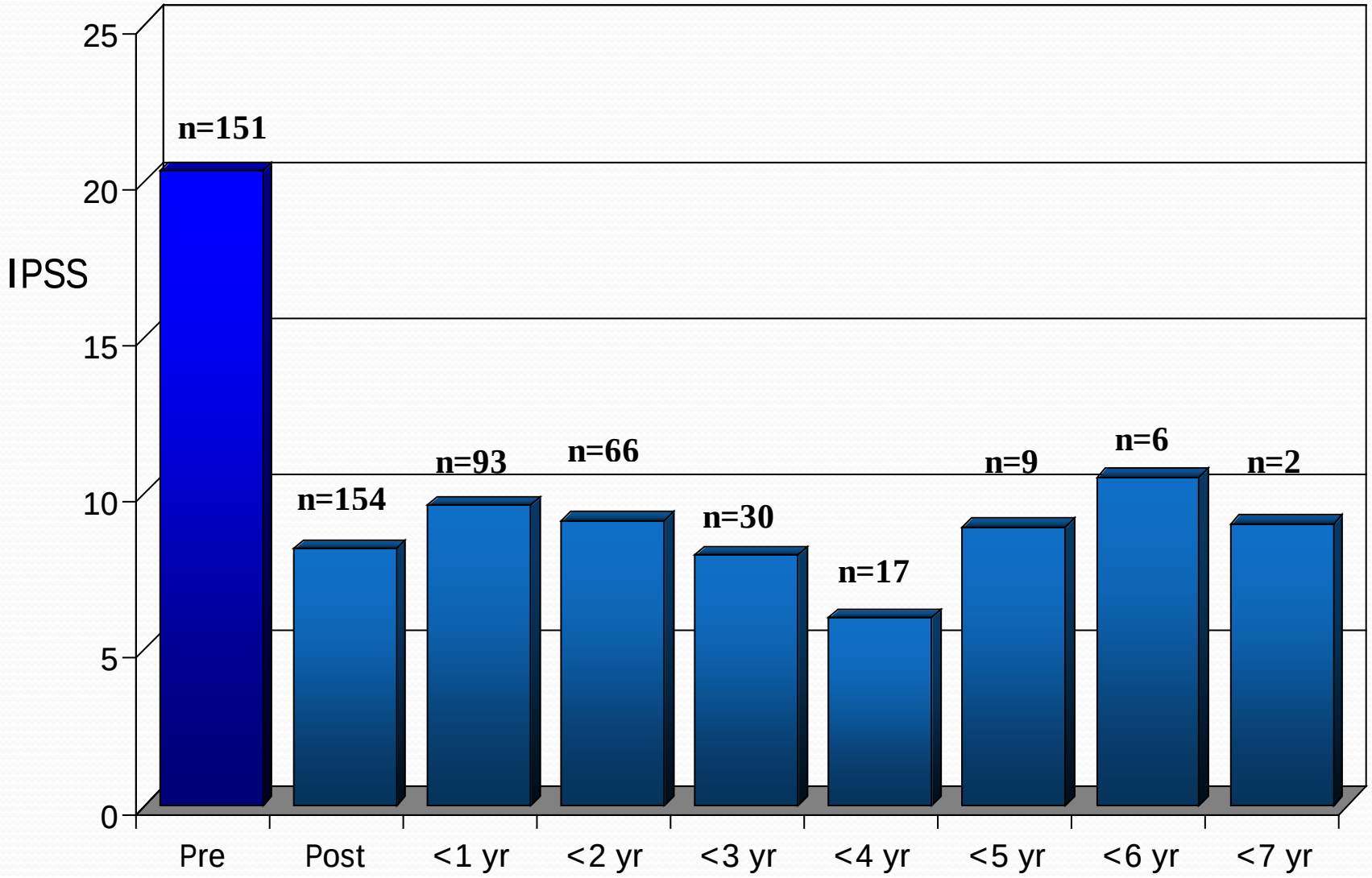
The Prostate Stent







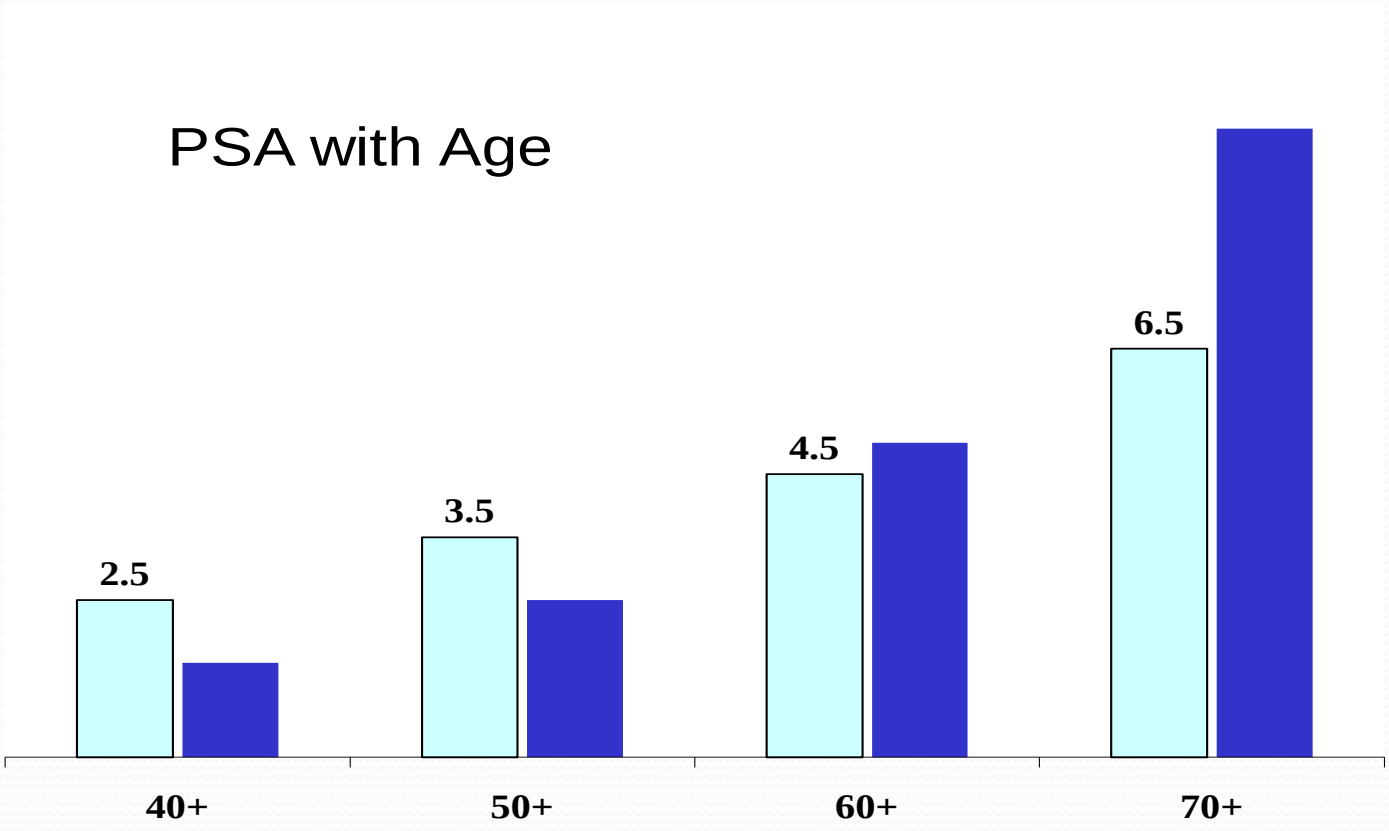
IPSS Scores after prostate stent insertion



Prostate Cancer

Prostate Cancer

- Incidence
- Risk factors & Minimising risk
- PSA
  - Is it accurate? Can it predict cancer present or future?
  - Should every man have one?
    - Population screening or Individual check?
  - When not to do it
  - More accurate tests?
  - Age adjustment



What should you do?

Prostate Cancer

Presentation

- Incidental finding & Screening
- Bladder outflow obstruction
- Haematuria
- Bone Pain
- Renal failure
- Lethargy & Anaemia

Incurable

Prostate Cancer

Management

- **Biopsy outcome CaP, HGPIN, ASAP**
- **Assessment**
- **CT / MRI**
- **Bone scan**

Prostate Cancer

Management

- Active Surveillance
- Curative therapy
  - Radiotherapy
  - Prostatectomy
- Hormones

Short Break

Scrotal swellings

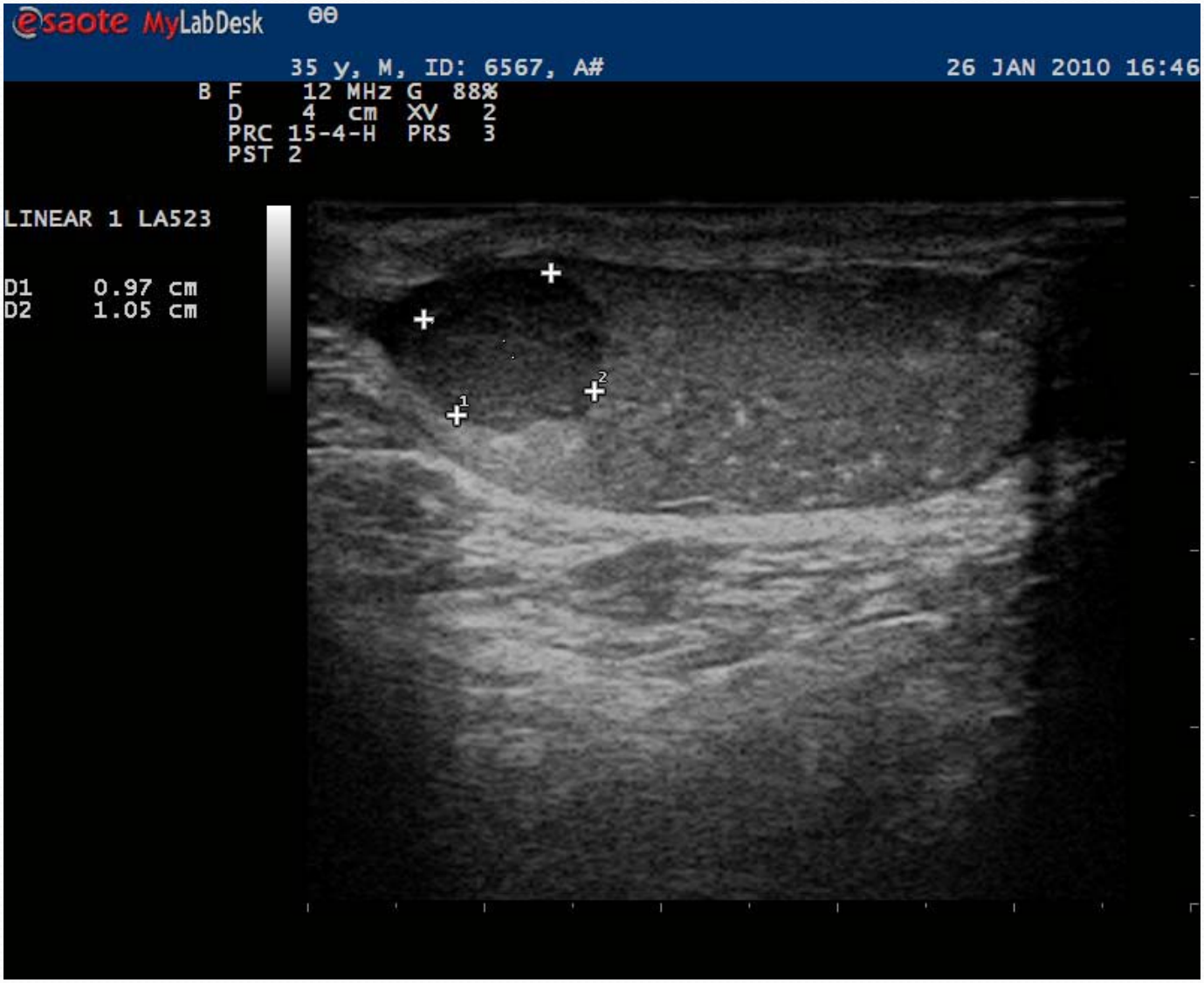
Examination of the external genitalia

The movie

The Scrotum

- Epididymitis
- Epididymo-orchitis
- Epididymal cyst
- Hydrocele
- Maldescent
- Testicular tumours and microlithiasis
- Torsion
- Fournier's gangrene
- Trauma

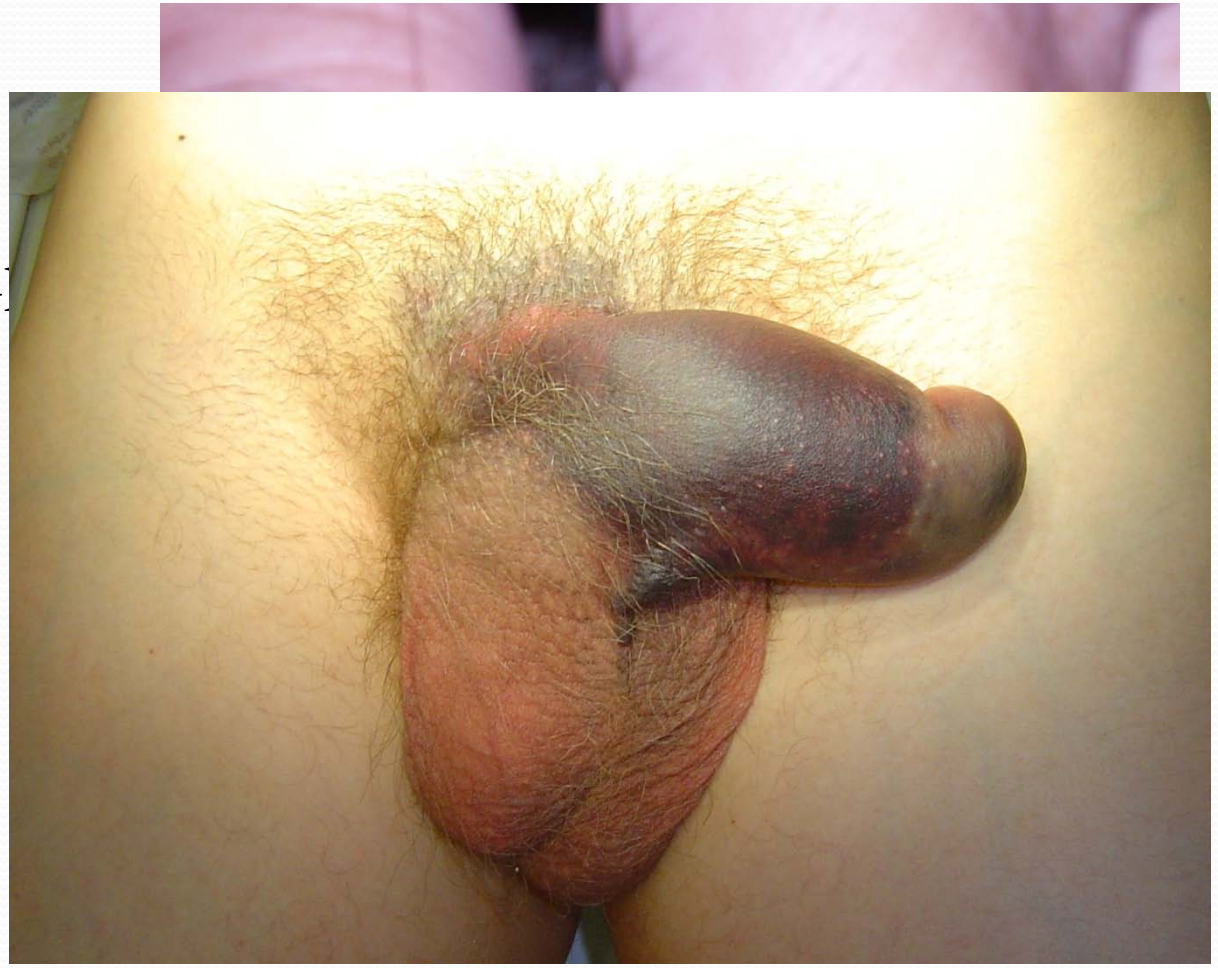
What can you do?

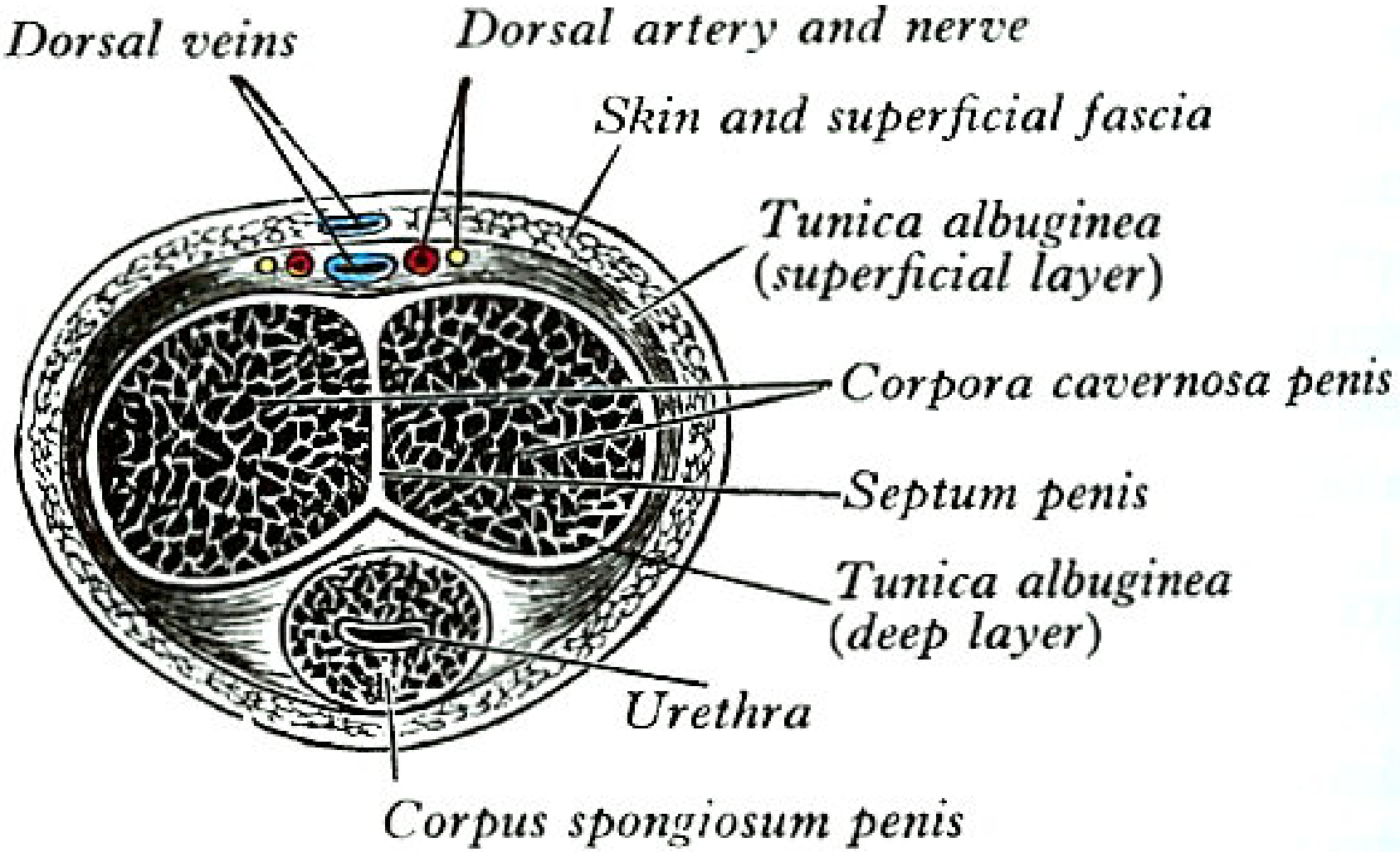

esaote MyLabDesk
35 y, M, ID: 6567, A#
26 JAN 2010 16:46
B F 12 MHz G 88%
D 4 cm XV 2
PRC 15-4-H PRS 3
PST 2
LINEAR 1 LA523
D1 0.97 cm
D2 1.05 cm
1
2

Penile problems & Erectile dysfunction

Penile problems & ED

- The Foreskin
  - Phimosis, para
- Peyronie's
- Fracture

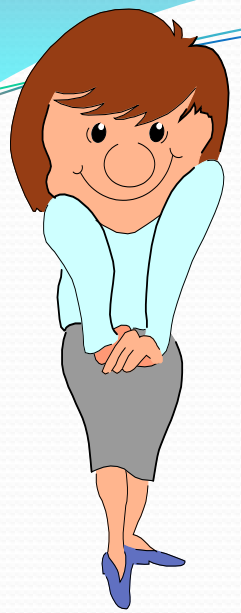




Transverse section of human penis.

Erectile Dysfunction

- Incidence
- Need for general medical
- Exclude obvious psychosexual problems
- Phosphodiesterase inhibitors



Sexual Stimulation

Nitric Oxide

Guanyl cyclase

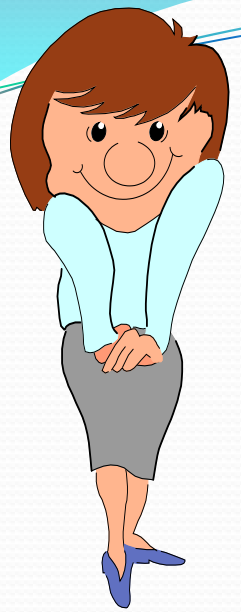
GTP

GMP

cGMP

Erection

Phosphodiesterase type 5



Sexual Stimulation

Nitric Oxide

Guanyl cyclase

GTP

GMP

Viagra

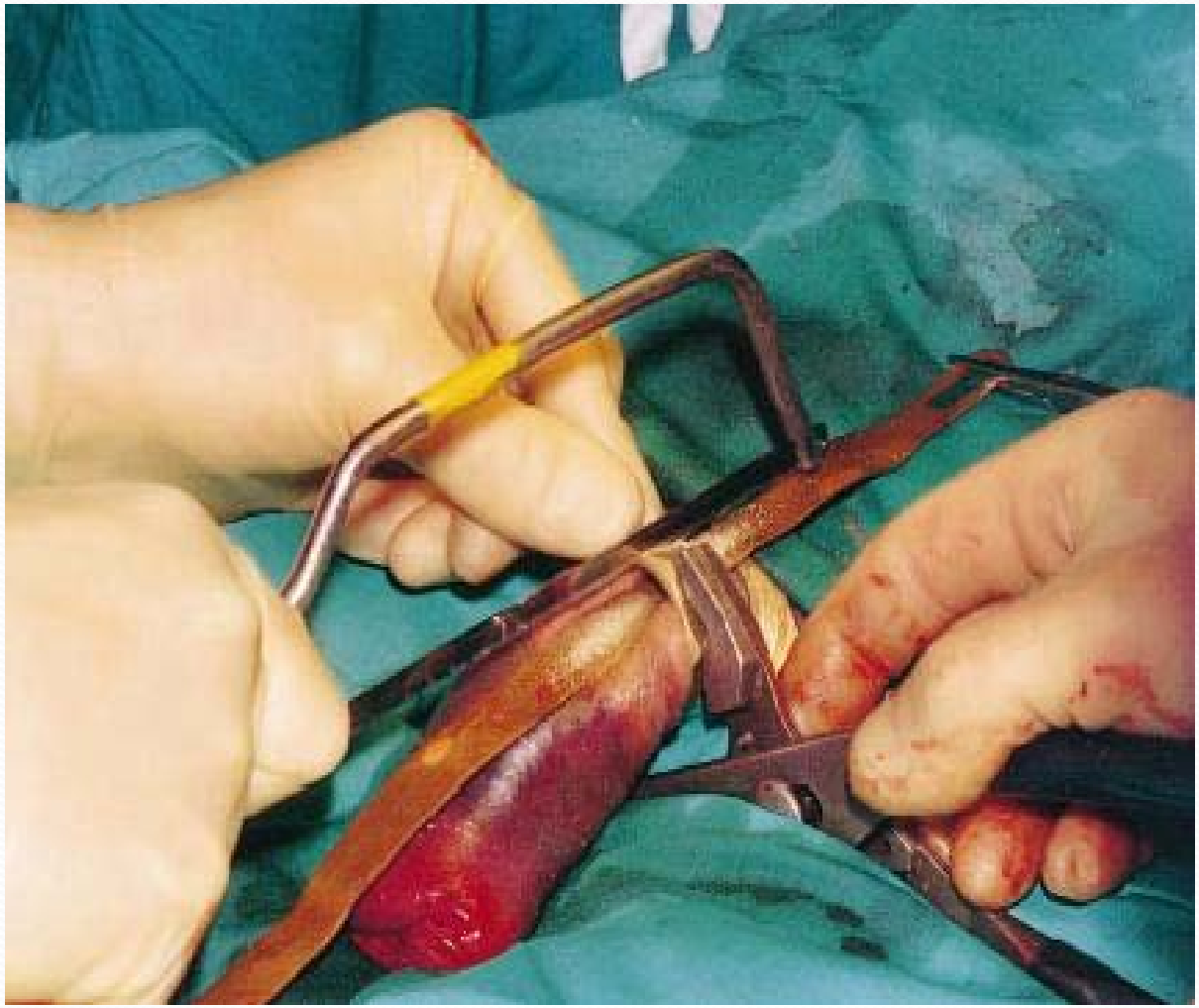
Phosphodiesterase type 5

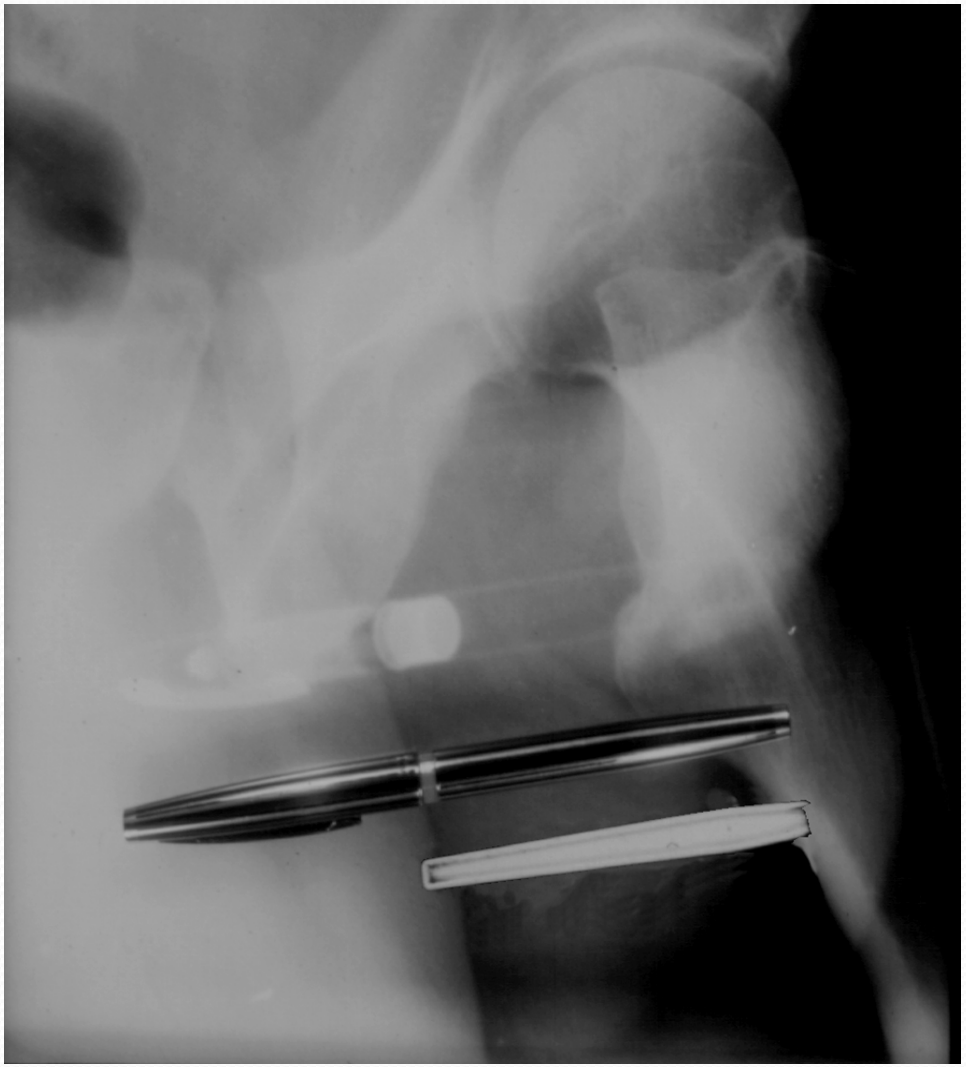
cGMP

Erection

Erectile dysfunction

Beware of the do it yourself remedy!





The End